DECEMBER, 1957 VOL. 2, No. 12

AEROSOL AGE

The magazine of pressure packaging

THIS MONTH'S COVER

First of the new spray-dispensed food products is Hueblin's "Sizzl Spray," packaged by Western Filling, Los Angeles. The package is equipped with a Calmar valve and a special cap by Sterling Seal Co. Story of the development of this and similar food products begins on page 30.

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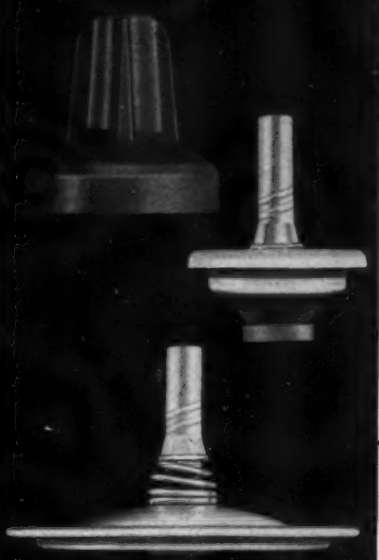

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from the

EDITOR'S MAILBAG

To The Editor:

In the September issue of your magazine there appeared an article entitled "Aerosols in South America" by Frederick G. Lodes, which represents the present situation in South America.

Our company in Peru has an aerosol division which deals with aerosol products under our own label, and also as a representative of foreign products locally filled through a filling company which operates in Lima. Our company has all the necessary facilities for promotion, selling, and distribution of aerosol products and we are in direct contact with the principal retail market in the country.

We would appreciate if you put us in touch with a U. S. firm which might be interested in our services for Peru.

L. G. Vazquez, Manager
PRODUCTS NYVA
Yavari 358-Brena
Lima, Peru

Companies interested in the services offered by the Peruvian company are invited to contact the company directly.

•

To the Editor

When we informed you of the formation of the International Aerosol Association in Zurich on Sept. 26, you were kind enough to offer to publish information we would furnish on the association. The situation in Europe is absolutely different from that in the U.S., as it must be remembered that there are many different countries, and this does not allow a uniform consideration of the aerosol situation.

It is for this reason that the administrative committee of our association has proposed to form national sections in the different countries of Europe and other continents (except North America). We are at present working on the organization of such individual sections.

On Oct. 26 an assembly was held in Frankfurt. It was attended by the most important German aerosol firms, as well as a few representatives from Holland, Denmark and France. The administrative committee of our association was present at the meeting, thus representing Switzerland at the same time.

At the meeting a committee was formed. Dr. E. J. Honisch, vice-president and secretary, and E. Hirschburger, treasurer, of the IAA were elected to the committee, and thus the IAA is strongly represented.

We ask you to consider this letter as a short report on the IAA, and should like to mention at the same time that your

(*Continued on Page* 109)

● **Western Filling—First to Custom Package Food Products** . . . Some of the problems, research, and primary considerations in the packaging of food products under pressure are discussed in an exclusive article beginning on page 30.

● **Frankfurt Meeting To Discuss European Aerosol Association** . . . Organization of the industry in Europe, a controversial subject, comes in for practical consideration at an industry meeting in Frankfurt, Germany. Story on page 35.

● **CSMA Meets in Hollywood Beach** . . . Aerosol Division program and highlights of the meeting appear on page 36.

● **The Significance of Droplet Size Measurement in the Aerosol Field** . . . Dr. William Tarpley, an authority in the field, gives this important subject a complete treatment, beginning on page 38.

● **New Materials for Nitrogen-Powered Aerosols** . . . A whole new series of raw materials, hitherto little used in the aerosol field, may come in for widespread use in the nitrogen aerosol. Article on page 42.

● **Aerosols in Argentina** . . . Two Argentine authorities describe the birth of the industry in this South American country. These reports plus a news story on the formation of an aerosol association there begin on page 43.

● **The Uncoated Glass Aerosol** . . . Jack Pickthall and Maria Wiener, contemporaries on two sides of the Atlantic, discuss varying views of the relative safety of uncoated glass containers on page 44.

● **A Summation of the New ICC Regulations** . . . This important document, containing the "ground rules" for shipping aerosols, appears on page 48 in a handy table form for future reference.

● **New Resin introduced by Union Carbide** . . . A water-soluble resin that is expected to find considerable use in aerosols, is introduced in a special conference by Union Carbide. Report on the properties of the material on page 57.

EDITORIALS

The European Aerosol Picture . . .

Of late there has been considerable discussion about organization of the aerosol industry in Europe. The International Aerosol Association is already in existence in Switzerland, and late in October there was a meeting of aerosol industry representatives from several countries expressly to discuss possible formation of a European aerosol association. There are also numerous rumors flying about organization of national aerosol industry trade groups in Great Britain, Canada, and other countries, and there are reports that the CSMA has been considering what role it might logically assume in assisting in the organization of the European aerosol industry.

It is perhaps unfortunate that every one in Europe seems to have had the organization idea about the same time, and that instead of one group, there are at least two and possibly several in the process of formation.

However, before launching into any discussion of the general picture in Europe (at least so far as we see it) one major point should be clarified. *Aerosol Age* is categorically in favor of some kind of aerosol organization in Europe. The need for one sound European trade group to act as an information center for the industry, and to advise the various governmental regulatory bodies on safety precautions and future regulations, is an obvious one.

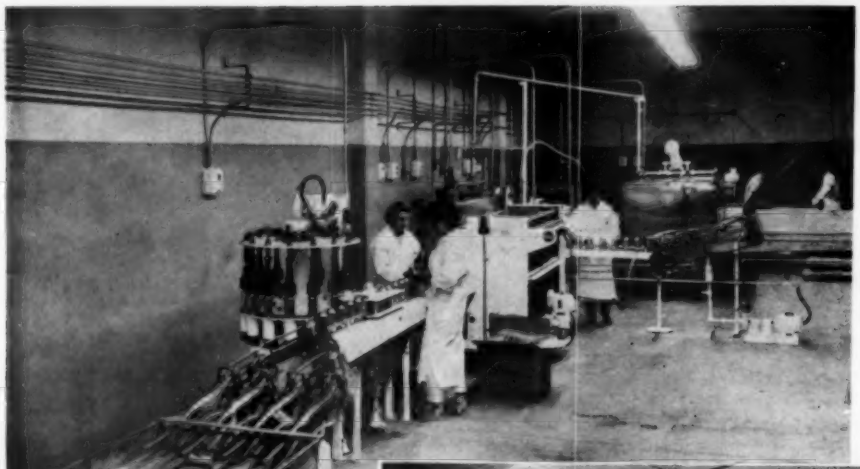
Imagine the effect on the aerosol industry in the United States if every state would prescribe separate safety regulations, or if each state's authorities would have only the limited information available from one or two industry representatives! The result would be chaos, and a similar situation might soon exist in Europe without early formation of a recognized influential organization to represent the industry.

There is probably little prospect of separate national or even regional (for the Benelux Nations, for instance) organizations being set up for each country or section of Europe. In any case, these in turn would have to be affiliated in some fashion so there could be one voice for the entire industry. Aerosol problems are universal, and exist across political boundaries just as they do across geographical or commercial boundaries.

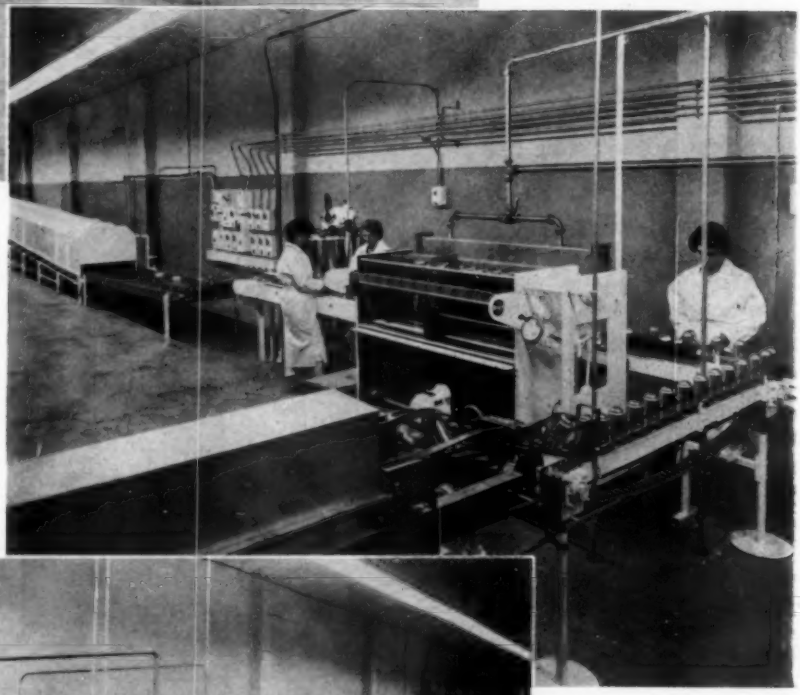
What must be resisted in the formation of any such organization (or organizations) is the possible desire of certain interests to gain control and use the group as a fulcrum to further their own companies or products. An effort must be made to provide the leadership of any association with a carefully-planned balance—so that each group is either represented directly in its administration, or is content that the administration is completely unbiased and concerned only with the best interests of the industry as a whole. Power politics and petty jealousies could wreck the association idea before it ever gets off the ground.

Much has been made of the fact that this magazine has agreed to act in a non-exclusive capacity as official journal for the International Aerosol Association. This has been inaccurately interpreted as an indication that *Aerosol Age* endorses the IAA over all other groups. This is not so. The IAA's announcements are printed for the obvious reason that the activities of this association are of definite news interest to the industry. Considerable news coverage is given the Frankfurt meeting in this issue for exactly the same reason. In both cases (and in the case of any other organizations formed in Europe) our interest can be attributed only to our sense of journalistic responsibility to our readers, coupled with a sincere desire to see a healthy organization of the aerosol industry in Europe.

(*Continued on Page* 108)



The raw product treatment area—The mixing of the raw product is accomplished in stainless steel kettles in the area to the right rear, and is then pumped through pumps and stainless steel pipe to finishers and homogenizers.



After the product is filled the cans have their valves inserted and crimped by means of a 15-head vacuum crimper. The containers are then rolled by conveyor to a specially designed cooler.

After going through a gasser and shaker they are fed into a hot water test tank where leakers are removed. Then the actuators are put on and each container is individually tested prior to labeling.

Western Filling Corporation

First to Custom Package Pressurized Food Products

THE first pressurized food in a single trip metal container was marketed in 1949. Application of other food products to the single trip metal can was a logical step in view of the tremendous success of non-food aerosols.

In the year 1949 approximately 30 million units of whipped cream and like products were packaged. The growth of this type of package has been steadily increasing until this year approximately 75 million food units will be packaged. Compared to the growth of non-food aerosols the growth of pressurized foods does not appear quite as spectacular. In 1947 approximately 5.5 million non-food units were produced, while in 1957 it is estimated that more than 340 million units will be produced.

The tremendous growth in the non-food field has been attributed primarily to the true convenience of the package and the variation in dispensing characteristics attainable. Pressurized foods are the essence of convenience, yet their dispensing characteristics until recently have been limited strictly to foam type products.

The slower rise in sales volume of the pressurized foods is due in part to the fact that only whipped creams and toppings in foam containers have been available to the American consumer. Any lack of a more spectacular growth can be attributed not to lack of a desire for new products, but to some of the following factors:

(1) The unavailability of propellants other than compressed gases.

(2) The lack of ability to develop dispensing characteristics (other than foams) that would insure high percentage of product removal from the can.

(3) The reluctance of the American consumer to accept foods, in the aerated state, that are normally consumed in the non-aerated state.

(4) The absence of custom-fillers equipped to offer a complete packaging service.

The American consumer seems to have accepted the pressurized whipped cream fairly well. One factor that has perhaps marred the growth of this field is the higher than normal percentages of product retained in the container when the propellant is expended. Another sales deterrent, that of refrigerated storage, has been overcome by The Avoset Corp., Gustine, Calif., by the use of an aseptically canned pressurized whipped cream called "Qwip".

The first pressurized food to appear in a liquid stream (with a minimum of aeration) was a soft drink syrup. The C. C. Lang Co., Baltimore, Md., marketed this product in July, 1956 in a 16-ounce American Can under the trade-name "Real Kool". The consumer reaction to this product was indicative of his acceptance of this type of product, for in a period of less than four months, more than 1,633,000 units were sold.

In September of this year the first spray food product, the result of nearly a year's research by Continental Can Co. and Western Filling, was marketed on the Pacific Coast. The product, a sweet-sour barbecue sauce called "Sizl-Spray", is being marketed by Andersen Foods (A division of Heublein, Inc.) Menlo Park, Calif. in a 12-ounce Continental Can.

THE early success of "Real Kool" and excellent sales figures for Andersen's product have opened the way to the hope that many new products will be forthcoming. A factor which has previously helped to retard the growth of this field, (namely, the absence of custom fillers) has been in part reduced. Food manufacturers have for the most part been reluctant to invest large sums for the packaging of products that are untried, despite the fact that these products may possess a tremendous potential.

Western Filling Corp., realizing the need for a custom filler in the pressurized food field, became what is believed to be the first such organization to offer this service in the world. The decision to enter this new and challenging field was prompted by the desire of the Andersen Food Co. to locate a custom filler to package their barbecue sauce, coupled with Western Filling's wish to offer a complete service in the pressurized packaging field.

Andersen Food first commenced development of this product in the fall of 1956. The product is the sauce used for so many years by the "Rancho Visitadores" on their annual ride through the hills of Southern California. As might have been anticipated, many formulation changes were required before the product appeared to be suitable for pressure packaging (at the same time preserving its original flavor and color).

The product was then forwarded

to the special products section of Continental Can Co., Metal Research and Development for their evaluation. After exhaustive tests, an indication of the proper propellant-product relationship was determined. Due to the nature of the product a completely new valve and actuator were deemed essential to achieve succesful spraying.

Last April the product was turned over to Western Filling for development of the desired spray characteristics and eventual packaging. To successfully handle such a venture (and the other products that were forthcoming) a separate food division was established at Western Filling.

On April 15 Robert C. Webster, formerly of Continental Can Co., joined the staff of Western Filling as general manager of the new Food Division. He came to Western Filling with a broad background in foods and more specifically, experience with pressurized foods, attained at National Canners Association Laboratories and Continental Can's Metal Research and Development center. While at Continental Can, Mr. Webster, who holds an M.S. in Food Technology, was instrumental in the development of Andersen Food's barbecue sauce, and other products that are expected to enter the field of pressurized foods in the next few months.

The second step taken in the formation of the new food division was the establishment of a modern pressurized food laboratory in May. The laboratory was equipped with the latest in scientific and pilot equipment to develop the barbecue sauce and the other products that are expected to follow. To offer the first and most complete laboratory service in this field the following policies of research and development were established:

1. *Product formulation and/or reformulation to meet the specific needs of the pressurized container.*

Product formulation and/or reformulation is obviously highly important in the development of the pressurized package since the product

"Real Kool," the first pressurized liquid-stream product was an early success.

must necessarily be tailored to the requirements of the package. Quality factors such as color, flavor, and consistency must be effectively blended with particle size and product viscosity.

The need for particle size control is elementary to the custom filler and is a day-by-day control problem in the non-food field. However in the food field the problem of particle size control is even more vital, since it must be coupled with flavor control as well as product viscosity. Upon reducing the particle size to a point where clogging is no longer a problem, flavor may be affected adversely.

The problem was encountered immediately with the Andersen "Sizl-Spray" barbecue sauce and only after exhaustive testing was it determined how far Western could go in reducing particle size without affecting product quality in the finished package.

The control of product viscosity is another important factor in assuring the success or failure of a pressurized food product. Many products, such as peanut butter, are not satisfactory for pressure packaging in their normal state. Product reformulation without loss of inherent characteristics is then indicated. If spray characteristics are desired, the product must remain within certain limits, or once again product reformulations will be required. Constant control of product viscosity during the entire packaging operation is also required if control of final spray characteristics is to be maintained.

2. *Study of currently available compressed propellants and mixtures of these propellants.*

As mentioned earlier, one of the factors that has until recently delayed the entrance of new pressurized foods has been the unavailability of propellants, other than compressed propellants. The liquefied propellants, such as the "Freons", "Genetrons", or "Isotrons", have long been felt by many to hold the key for successful pressurized foods. These propellants derive their force from expansion or vaporization and due to their high expansion ratios, cause effective break-up of spray products. The liquefied propellants also retain nearly constant pressure during the service life of the container.

The compressed propellants have received most of the benefits of research in pressurized foods for the following reasons:

(1) The compressed gases have government clearance for use with foods, whereas the liquefied propellants have still not received this clearance, because of possible toxicity.

(2) Appropriate compressed bases impart no off-odors or flavors to the product. It has been observed, however, that some food products *are* adversely affected by liquefied propellants, from the standpoint of both odor *and* flavor.

(3) The compressed gases are considerably lower in price than the liquefied propellants. In fact, the compressed propellant in a barbecue sauce costs so little that it is included in the packaging costs. To do the same job the liquefied propellant would cost considerably more.

(4) Combinations of compressed propellants, such as nitrogen can be blended to give a non-aerated stream to many food products. The non-aerated stream is virtuably unattainable with the liquefied propellants.

Western Filling, realizing the limitations of these propellants, such as N_2O, CO_2 or N_2, has set about to learn the methods of utilizing and controlling them. In May tests were conducted to determine the usability of these gases in a multitude of products. The possibilities for use of nitrogen and other inert gases have long been realized at Western Filling, and shelf-tests on chocolate and fruit syrups (with this propellant) have been underway since spring.

By appropriate combination of product, valve and actuator, and propellant, a 97-98% removal of product with many products was achieved. With such a high removal of product the container will still contain between 20-35 PSIG of the propellant (*when emptied of product*). Gone are the days of high product retention!

A great deal of research also has been devoted to the study of mixtures of the available propellants. Many interesting products, displaying product characteristics not available with the use of straight gases, will soon be forthcoming.

3. *Development of new valves and actuators to produce the desired dispensing characteristics.*

One of the problems first recognized in the development of pressurized foods was the acute need of valves designed to function specifically with food products. The numerous valves employed in the non-food field were found to lack certain characteristics that appeared necessary for dispensing food products.

The valve for pressurized food products serves the primary purpose of guiding the product-plus-propellant to the actuator, where the breakup of product must be accomplished by mechanical means.

The original efforts to achieve a spray of product were based on the following premises:

(1) Product flow to the actuator must be as rapid and unrestricted as possible. Turbulence of flow appears to be a necessary adjunct, and rapid turbulence flow plus mechanical breakup in the actuator yields satisfactory sprays.

Western Filling maintains a fully-equipped food research and testing laboratory to maintain quality control over the formulation, spray pattern, propellant, and finished product in various stages of manufacture.

(2) Redesign of currently available actuators must be compatible with particle size as well as possessing mechanical systems to break the product.

Further efforts are underway to develop valves and actuators for other specific products, since each product requires separate consideration in the development of spray characteristics. For example, there is no one actuator tip that will successfully break up all barbecue sauces. The Calmar actuator on the "Andersen Barbecue Sauce" was designed specifically to give a specific spray pattern and particle size for this product.

Further work has also been devoted to the development of actuators for streams or ribbons of the delivered product. The efforts of the Calmar Company and Western Filling have resulted in an actuator which possesses the following attributes:

(1) Actuation with only fingertip pressure and with uninterrupted delivery.
(2) Easy delivery of product to the object.
(3) Spout of actuator is drip-proof.
(4) The design is functional and modern, thus creating an atmosphere that helps prevent any possible unfavorable mental association of the product with non-food aerosols.

With the unlimited cooperation that has been given (and will continue to be given) by the valve suppliers to this project, many new and interesting valves and actuators specifically designed for foods should be forthcoming.

4. *The study of bacteriological shelf-life of pressurized food products.*

It has long been known that most pressurized foods will require some degree of preservation, whether it be heat or refrigeration. Most acid products below a pH of 4.5 will require heat sterilization to insure adequate shelf-life.

Normally, exposure to a temperature of 190°F. or higher will insure protection (assuming a normal bacterial load) against such normal spoilage agents as yeast, molds, and sporing and non-sporing aciduric bacteria.

Products that have a pH of 4.5 or higher will normally require refrigerated storage to insure a satisfactory degree of shelf-life. The shelf-life of these products (i.e., whipped creams and toppings at 40°F.) is quite short in comparison with acid products sterilized by heat. A notable exception to this rule is "Qwip", Avoset's aseptically-canned whipped cream.

Another class of non-acid products that would require refrigerated storage (but should be discouraged) are such products as pancake batter or cake batter. These products are perhaps the most ideal media for growth of such toxic bacteria as *Cl. botulinium*. One of the major can companies has even adopted an unannounced policy of discouraging potential customers from packaging these types of products, and Western Filling has adopted a similar policy, (but more stringent to the point of refusing to package such products

because of the possible hazards involved).

There *are* numerous products such as salad dressings, toppings and others that do not require heat treatment due to certain product characteristics. The preservative effect of high sugar, high salt, or low moisture has long been known in the food field.

The effect of these agents and of preservatives such as sodium benzoate and sorbic acid have been studied and evaluated by Western Filling. However, the effect of these preservatives should not be solely relied upon as a means of insuring sterility. This is shown clearly in products such as honey (which has very high sugar and low moisture) that require heat treatment to insure sterility against such spoilage agents as osmophilic yeast.

5. *The development of new container structure and enamel systems for the varied requirements of pressurized foods.*

Contingent with the development of new products, work has been proceeding on the evaluation of currently existing containers. The necessity for compatability of product to container has long been a subject of importance to the can companies.

Western Filling has had many food products under controlled temperature storage since the inception of its food division. One factor that appears to be significant from these tests is the apparent increase in corrosivity of products under pressure, as compared to corrosivity of the product in a regular open top metal can. It is virtually impossible to predict accurately the corrosiveness of any one food product because of the many variations in product formulations within just one class of food products. At Western Filling each new product is shelf-tested over a predetermined range of temperatures. This is a chief reason why more products haven't rolled off Western Filling's production lines to date. The company is anxious to prevent from happening to the pressurized food field that which happened to the canned carbonated beverage field. It is felt that any danger of future technical difficulties with food products can be prevented by producing only quality products with a background of research behind each and every product.

The third step taken in the establishment of a food division was the setting up of adequate production facilities. Gerald Ivy, formerly production manager for a large West Coast firm, joined Western Filling to supervise the installation and operation of the food production facilities.

The installation of equipment was governed by the desire to offer the most complete pressurized food service available. The success of the parent company's pre-mix and blending department in the non-food field indicated the need for such a department in the food division, which was later determined to be of much greater significance. The food division production facilities are comprised of two sections:

1. *The raw product treatment area.*

In this completely curbed and well drained area are installed complete equipment for the blending and mixing of raw product in large jacketed stainless steel kettles. The mixed product is pumped through sanitary pumps and stainless steel pipe or neoprene tubing to various equipment (such as finishers and homogenizers) where special product treatment is completed.

The finished product is pumped through stainless tubing to a specially designed heat exchanger, where product temperature is controlled to plus or minus 1°F.

The heated product is then pumped to the second production area:

2. *The manufacturing area.*

In the manufacturing area the heated product is filled into prewashed cans by a ten-spout Hope filler. The filled cans have valves inserted and are crimped by means of a 15-head vacuum crimper. The crimped containers are then rolled to a specially designed cooler where they are cooled to room temperature prior to the actual gassing and shaking operations.

The cans flow onto a turn table and thence into a battery of two 12-head gassers and shakers. They are then gassed through the valve under predetermined charging and shaking cycles, following which the gassed cans are fed into a hot water test tank where leakers are removed. The cans emerge from the hotwater test tank onto a packing table where actuators are put on, and each container individually tested prior to labeling.

The labeled containers are capped and cased. The open cases are passed by roller conveyor into the warehouse, where gluing and stacking on skids is accomplished.

The great need for accurate quality control is observed through the manufacturing processes. Containers are constantly check-weighed to maintain accurate filling weights. Pre-cool and after-cool temperatures are taken at regular periods. Accurate checks on equilibrium pressures and weight of propellants in the container are maintained. In this way accurate checks on the efficiency of individual charging heads is maintained. This is of great importance in the use of such gases as nitrogen, where an error of 1% in filling could result in too high a product retention.

The same quality control efficiency is applied to the raw product area where an accurate laboratory check is maintained on product viscosity, pH and other product characteristics.

THE future of pressurized foods appears to be very bright. The interest created by the entrance of these latest pressurized food products on the market has done much to create new enthusism. More custom fillers are entering the field, and soon packaging of pressurized foods on a national scale will be a reality rather than a future fancy.

In order to keep abreast of the meteoric growth of this field, Western Filling has already formulated plans for expansion of its Los Angeles facilities. In addition, plans are being laid to establish the company's packaging facilities in other parts of the country. Additional packaging area-

(*Continued on Page* 115)

Aerosol Age is indebted for this complete report to Pegasus International Corp., New York, whose German representative, F. Hans, has supplied a German text of the meeting proceedings. Pegasus' New York office has translated the proceedings into English and the final report as it appears below is staff written by *Aerosol Age*.

European Aerosol Representatives Meet in Frankfurt to Discuss Formation of New Organization

APPROXIMATELY 60 aerosol industry representatives from West Germany, Denmark, France, Holland, Switzerland, and the United States met in Frankfurt / Main, Germany, Oct. 26 to discuss the formation of a European aerosol association. The group assembled at the invitation of *Parfumerie Und Kosmetik*, a German trade magazine, whose editor, Hans Hentzel, is credited with being the guiding hand in organizing the meeting.

To formulate specific plans for the organization of an aerosol association, the representatives present named a subcommittee made up of members from the leading component manufacturers and custom fillers represented. The decision to form the committee followed considerable discussion on whether the future organization should be German, European, or formed from a nucleus of German, Italian, and English members. The subcommittee is expected to study this and other pertinent questions, as well as to propose a constitution for a future organization.

At the opening of the session, Mr. Hentzel, who acted as chairman, suggested that the following be considered as points of discussion:

1. The advisability of obtaining one universally-accepted word designating aerosols; which, in newspapers and other periodicals, would have a universal meaning to all companies.

2. Use of the word "aerosol" for only those products which are genuinely termed aerosols by all members of the industry.

3. Formation of a general advisory service which would be available for technical and commercial information to the aerosol industry and those interested in aerosols.

The word "aerosol" itself came in for considerable discussion at the meeting. Dr. Everts, of J. G. Mouson and Co., Frankfurt, stated that the term has far too technical a ring to it, and mentioned that most of the current products are not genuine aerosols at all. He also pointed out that the word "aerosol" is extremely difficult to pronounce (in German), and suggested that a more general, and more acceptable, term be used instead.

However, the majority of those attending seemed to be of the opinion that, since "aerosol" is already internationally accepted, it should be retained for general use — particularly since no suggestion for a suitable replacement has been made. It was suggested that the ease with which the word would be used by the public could come through radio and television advertising.

Robert A. Foresman, Philadelphia aerosol consultant, declared that, in the U.S., there is also considerable demand for a better word which would more accurately and easily picture the action of an aerosol. He declared that, though several words have been tentatively accepted by manufacturers, they have always returned to the original "aerosol."

THE question of the need for the formation of a "loosely unified" association was introduced by F. H. Hans, manager of the Frankfurt office of Pegasus International Corp., New York, in a brief address at the close of the first formal session. Commenting briefly on the history of the aerosol in the U. S. and in Europe, Mr. Hans pointed out that any European association would have to face psychological as well as technical problems.

He said that a brief look at the development of the industry in the U. S. shows not only the new well-known and dazzling production figures, but more important, that many problems exist there too. He concluded by noting that high prices are continuing to be demanded for aerosols in Europe, but declared that these could be lowered by an increase in production and a larger variety of uses to which an aerosol could be put.

The question on the advisability of immediate formation of an aerosol association encountered heavy going. Such questions as how such an association should be formed, who should belong to it, and what powers this group should have, drew such heated argument that no agreement could be reached at the first meeting; and it was left to the subcommittee to bring in a number of proposals that might make formation of such an association more acceptable to the delegates.

A proposal was introduced to design specific aerosol association insignia, which could then be used only by those manufacturers who belonged to the association. A number of leading firms, many with long-established trademarks, objected strongly to such a move, declaring that such an insignia would be an infringement on their "commercial sovereignty," especially should they have to submit to set technical standards in order to use the term "aerosol."

This led to a discussion of the obligation of the manufacturer to print the word "aerosol" on his product label, and F. Harlan, of De Trevise, Colombes/Frankfurt, reported that such a designation on a product label in France had seemed to give it an

(*Continued on Page* 109)

The scenic beauty of the Hollywood Beach Hotel: (Above) The main entrance to the hotel is up a palm lined drive. Below, a section of the hotel's wide beach.

CSMA Meets at Hollywood Beach

PHARMACEUTICALS, protective coatings, silicones, and an improved method for pressure filling will comprise the major part of the Aerosol Division's program as the 44th annual meeting of the Chemical Specialties Manufacturers Association begins at the Hollywood Beach Hotel, Hollywood Beach, Florida. The meeting, one of the best-attended in the association's history, begins Monday, Dec. 9 and goes through Thursday, Dec. 12.

In addition to the regularly scheduled program, the aerosol industry representatives' program will include two additional features. The first of these is the presentation of the awards in the Aerosol Division's annual package contest, which for 1957 is reported to have the most entries of any previous contest. Also, the Division will see the first public showing of the new television film — prepared under the supervision of the division's publicity committee.

The CSMA has planned a number of extra activities for the time not

covered by the program. Golf and other sports contests are scheduled for the afternoons of Tuesday, Wednesday, and Thursday, and a number of tours have been made available to those attending. Also, deep sea fishing and other special sports contests (shuffleboard, tennis, table tennis, and putting) have been scheduled.

PHARMACEUTICAL aerosols, one of the fastest rising of all product types will be discussed fully by Dr. Martin Barr, of the Philadelphia College of Pharmacy & Science. Dr. Barr, who organized the college's "Aerosol Symposium for the Pharmaceutical Industry," held in Philadelphia in August, is a well-known authority in the field. His paper will include a discussion of possible new applications of the aerosol to the pharmaceutical industry.

The list of non-aerosol speakers for the general session includes Frank L. Holland, manager of Florida Agricultural Research, and Philip W. Moore, president of the First Florida Corp.

MONDAY, DECEMBER 9

General Session—11:00 A.M. to 12:15 P. M.—Pageant Room

"Address of Welcome" by
Frank L. Holland, Manager
Florida Agricultural Research

Presentation of Aerosol Package Contest Awards—Report of the Nominating Committee.

Election of Officers and Board of Governors for 1958.
Address—Mr. Philip W. Moore, President, First Florida Corporation.

TUESDAY, DECEMBER 10

Morning

AEROSOL DIVISION
Scientific Committee

"Gulf 'SA' Aerosol Valve," A. J. Samuel and R. V. Sharpless, Gulf Research and Development Co.

WEDNESDAY, DECEMBER 11
9:00 A.M.-12:30 P.M.

Morning

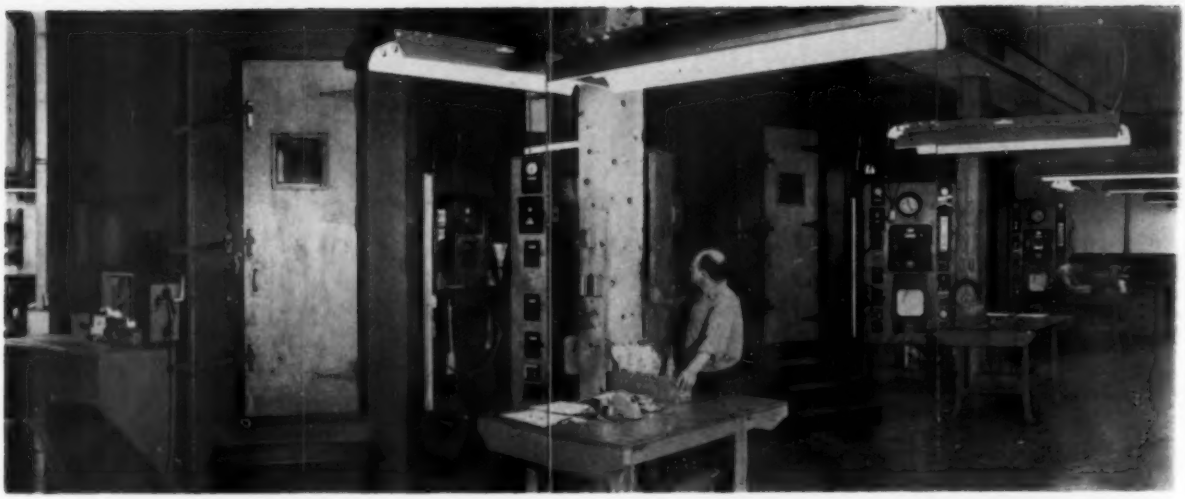
AEROSOL DIVISION
Charles E. Beach, Presiding

"Address of the Division Chairman," Charles E. Beach, John C. Stalfort & Sons; *"Pharmaceutical Aerosols,"* Martin Barr, Philadelphia College of Pharmacy; *"Observations on Aerosol Protective Coatings,"* Ludwig J. Hecht, Lenmar Lacquers, Inc.; *'Silicones and Their Use in Aerosols,"* Thomas H. Reilly and Donald V. Brown, General Electric Company; *"Progress Report on Aerosol Publicity Committee,"* Frederick G. Lodes, Lodes Aerosol Consultants, Inc.; *"An Improved Method for Pressure Filling Aerosols,"* L. P. Hall, Jr., Freon Products Division, E. I. duPont de Nemours & Co., Inc.

THURSDAY, DECEMBER 12
10:30 A.M.

GENERAL SESSION
J. E. Ferris, Presiding

"Address of the President," H. E. Peterson, Peterson Filling and Packaging Co.; *"Report of the Secretary,"* H. W. Hamilton; *"Report of the Treasurer,"* P. C. Reilly, Reilly Tar & Chemical Co.; *"Report of the CSMA General Counsel,"* John D. Conner, Cummings, Sellers, Reeves and Conner; *Address, Mr. R. B. (Dick) Roberts, Vice President, Florida Power and Light Company.*
"Introduction of new officers for 1958."



the Significance and Determination of

Droplet Particle Size

for the Aerosol Field

By William B. Tarpley
Director, Chemical Research and Development
Aeroprojects, Inc.
West Chester, Pa.

BRIEF extemporaneous remarks at the Aerosol Symposium for the Pharmaceutical Industry in August by the author evoked sufficient interest in the field of droplet size determination to warrant the publishing of this paper. Since there exist a number of treatises on particle size determination (References 1-6) it is the intention of this paper not to present another literature review, but rather to touch on highlights of recent techniques that have been useful in the Aeroprojects Laboratories during the past seven years.[7] Attention is also directed to the fact that there is considerable literature on particle sampling arising out of a variety of Government projects, some of which is not generally familiar to organizations not cleared for security information.

In this paper we shall consider certain properties of airborne droplet dispersions that are pertinent to the pressurized package industry. A producer of aerosol "cans" should become concerned with particle size optimum for inhalation and lung retention and with rehydration rates of inhaled particles. Several of the more important droplet sizing techniques will be discussed: size determination by single-stage discrimination, by Cascade impactors, "preimpingers," light scattering, electrostatic charging, and stirred sedimentation. Typical techniques and data will be described, and the references given, while not all-inclusive, should be readily accessible.

PROPERTIES OF SMALL DROPLETS

Fall-Out and Particle Size

The particle size of individual droplets produced by pressure spray containers has considerable influence on their subsequent use. For many applications, relatively large particles are desired. These would include situations where the velocity of the dispersed particle must be sufficiently high to cause it to impact and coat an adjacent object. Painting and the external application of pharmaceutical or cosmetic preparations to the body, for example, would require the large-particle technique. On the other hand, small particles are necessary for the intimate contacting of intricate shapes, for passage around baffled entrances or loose stacks of objects, or for penetration into the lungs of humans or animals. Small particles fall less rapidly and are requisite if space treatment or other considerations require airborne dispersions to move even moderate distances.

The rate of fall of particles may be judged by their terminal velocities.[8] Thus for a material of density 1, a 100-micron particle such as might be used for painting has a terminal velocity of about one foot per second. In contrast, a 30-micron particle as produced by a good two-fluid type spray nozzle has a termin-

Facing page: Aeroprojects Ultrafine Particles Laboratory.

velocity of 0.1 foot per second. It is thus apparent that a 30-micron particle created in the air at five feet above the floor will fall to waist level in 15 to 20 seconds and will reach the floor in less than a minute. A five-micron particle, which might be used for inhalation, would require just under one-half hour to fall the same distance (see Table I).

TABLE I

Particle Size (Diameter)	*Terminal Velocity*	*Approximate Time to Fall 5 Feet*
100 microns*	1 foot/sec	5 sec.
30 microns	0.1 foot/sec	50 sec
10 microns	0.01 foot/sec	500 sec
5 microns	0.003 foot/sec	1700 sec

*1 micron = 0.001 centimeter = 0.00004 inch.

If airborne dispersions produced from pressure-packaged products are to be used before settling, they may be formed in any of three ways. The common method in pressure container applications is to use a fairly dilute solution to produce relatively large droplets which quickly evaporate to the desired small range. Alternately, it is now possible to achieve such stable small sizes through initial formation from a highly concentrated solution or from a melt. The latter technique is normally utilized at Aeroprojects for the preparation of standard dispersions in the size range of 10 microns or below and of stable dispersions in air for industrial use. A photomicrograph of a typical waxy material is shown in Figure 1. Over 90% of the microspheres as originally produced by the Aeroprojects nozzle are in the particle size range of 7 microns and below. A third method utilized in the aerosol industry for the production of stable dispersions of fine particles in air is the deagglomeration of previously prepared fine solid particles as they are dispensed from pressure packages.

Droplet Evaporation

Many pressure-packaged products which are utilized for space treatment, and hence require fine particles, utilize rather simple valves or nozzles

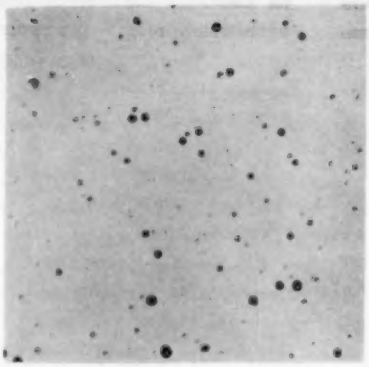


Figure 1

Microspheres of Polyethylene Wax Collected by Fall-out Techniques
Magnification: 285X)

that produce relatively large particles and depend on evaporation to develop stable fogs of fine particle size. Solutions or suspensions of materials that must evaporate may be contained in water, organic solvents, or fluorinated hydrocarbon propellant. Considerable basic research has been done in the study of evaporation of single droplets of various liquid solutions.[9, 10] More recent experimental measurements and correlation with a modified theory have been published.[11] Single droplets of aqueous salt solutions suspended in room-temperature air of about 50% relative humidity will evaporate and become more concentrated until the solution vapor pressure becomes equal to the partial pressure of water vapor in the surrounding atmosphere; no further size change will then occur. Computations indicate that for droplets initially formed in the five- to ten-micron size range, this equilibrium particle size will be attained in a very small fraction of a second. In some cases, the time may be as short as 0.05 second. Conversely, 40-micron particles may take from four to eight seconds to evaporate to equilibrium size, and larger particles require a considerably longer period of time. Since these computations are for single droplets in relatively still air, it does not follow that exactly the same rates will be achieved in clouds of particles, but these figures may serve as order-of-magnitude limiting rates. One may conclude that as the particle size becomes smaller, evaporation rates become extremely rapid.

If one can pay the penalty of atomizing dilute solutions, and if evaporated particles are not subjected to atmospheric conditions promoting growth (e.g., very high relative humidity), coarse atomization followed by evaporation will produce a satisfactory fog.

Inhalation of Fine Particles

When a stable airborne dispersion of particles in air is to be used to deposit in any intricate contorted spatial array (such as the human lung and bronchial tree) knowledge of the influence of particle size is necessary. Generally smaller particles will penetrate deeper, while larger particles are filtered out in the upper respiratory tract.

Interest in inhalation therapy is growing, since adsorption from the alveoli is believed to be as rapid as intravenous injection. Refinements in particle size control of the spray can lead to the deposition of major portions of the medicament in various portions of the bronchial tree. This technique has not as yet been widely employed, because of the difficulty of obtaining stable dispersions of particles in the size ranges that are optimum for deposition in the various parts of the respiratory tract.

Inhaled particles to be effective not only must reach the desired site, but must also be retained, and it has been postulated that particles which are too small will be exhaled. Inhalation and retention data as a function of particle size have been obtained by various investigators. A convenient summary of results is that of Brown, et al.[12] These data indicate that the optimum particle diameter for penetration to the alveoli and deposition at that site is of the order of one to two microns. Penetration of particles substantially larger than five microns beyond the upper respiratory tract is quite small, while particles smaller than ¼ to ½ micron tend to be exhaled before they have an opportunity to deposit. The figures quoted are for a finely divided clay.

There is evidence that the optimum

size for penetration and deposition in the alveolar section of the respiratory tract is also a function of the density of the particle. For more dense substances, increased retention of the smaller particle sizes is reported.[13] The importance of particle sizes above ½ micron and below five microns must therefore be re-emphasized in any practical utilization of inhalation therapy in which deep penetration of the respiratory tract is desired.

Particle Rehydration and Size Increase

In the foregoing discussion of respiratory retention, it is noted that experimental use was made of clay, which is a non-hygroscopic substance. In many practical instances, hygroscopic materials are utilized for pharmaceutical purposes, and their behavior in the respiratory system needs investigation, with attention to the extent of particle growth arising from adsorption of water vapor from the moisture-laden gases present in the respiratory system. Particle growth due to adsorption of water vapor from deep within the lungs can in some cases modify the diameter of particles offering maximum retention by a factor of two.

Experimental indications of such effects have been noted by Hatch[14] and have been treated in detail more recently by Milburn, Crider, and Morton.[15] The latter authors have calculated that a four-micron particle containing sodium chloride inhaled into the respiratory system grows to eight microns in diameter in approximately ½ second and then increases to ten microns diameter in a total of one second, at which time it is in equilibrium with the 96% relative humidity condition of the lung. It was further concluded that two-micron particles will have rehydrated completely by the time they reach the regions of the lung in which they are most likely to deposit. This rehydration would result in a significant increase in retention.

The influence of rehydration and the narrow range of effective particle sizes warrants careful consideration to particle size determination of any airborne spray intended for controlled penetration of the respiratory tract. If deep penetration is desired, the importance of generating small particle size without dependence on evaporation is emphasized, since rehydration occurs in the upper as well as the lower respiratory tract.

Other aspects of the influence of particle size on the behavior of dispersions of droplets or solid particulates in air may be of general interest. The striking increase in the surface-to-volume ratio in subdividing from a single sphere of one-cubic-centimeter volume to a fog of five-micron particles—an increase of 3000-fold—is truly astounding. In general, however, the aforementioned factors of rate of fall-out from the air, rate of evaporation and rehydration, and particle size required to penetrate intricate passages of the respiratory system would seem to be those of greatest significance in the use of pressure-packaged fine-particle generators for pharmaceutical applications.

PARTICLE SIZE DETERMINATION

We should consider the more commonly used techniques for the determination of particle size. Usually it is desired to know the size of the particle after it has come to equilibrium with the air in which it is to be used. From the aforementioned rapid rates of evaporation, it can be seen that any particle that will remain suspended for an appreciable length of time will be in evaporative equilibrium with the air surrounding it. Hence, measurement of particle size at this stage is not complicated by problems of further evaporation and can be correlated with end use.

In certain cases, however, it is desired to know the particle size as generated by the nozzle or valve, and three approaches may conveniently be applied to this situation. A method generated. Particles such as those ratory involves ultra-high-speed photography of the particles as they are generally applied in the physics labo- of volatile hydrocarbons have been evaluated by freezing of the spray as soon as formed, using an atmosphere chilled by liquid air.[16] Another method is to spray simulant non-evaporating liquids, which can be prepared over a wide range of surface tension and viscosity. The evaluation of the particles produced by these non-evaporating systems can be the same as for particles which have evaporated to equilibrium. Then if one knows the vapor pressure-composition curves of the actual system. through the technique of Crider, et al., discussed above, one can estimate the change in particle size as a function of the ambient condition around the particle.

Microscopy

A technique often used as a basic reference for particle size determination involves collection of particles of non-evaporating materials on slides and subsequent enumeration into a series of size groups. Difficulties are frequently encountered in the collection of an unbiased sample, and sizing from 1000 to 10,000 particles to obtain a size distribution is tedious; a sufficient number of microscope fields distributed randomly over the slide must be examined. Particles are sometimes collected by long-time fall-out, such techniques providing sufficient accuracy for preliminary investigations. A recent development which avoids collection bias involves filtration of the dispersion through "molecular filter" membranes.[17] The pore size of these filters is such as to retain micron-size particles, and microscopic counting can then be applied to the membrane. If one can collect in a suitably immiscible solvent of high boiling point,[18] photomicrographs can be taken and the particle size distribution established either by visual counting or by one of the several size discriminatory machine counters, notably that of Marshall, et al.[19] It has been observed, however, that this technique tends to discriminate against small particles, and high-speed photographs have shown particles striking the surface of the collecting fluid and bouncing off.

Cascade Impactor

A frequently used technique for the estimation of particle size distribution is that involving the collection of droplets by impaction. A stream of airborne particles is projected through a series of nozzles and glass slides at increasing velocity. For a given system, larger particles are impacted on the lower velocity stages, while smaller particles pass on and collect on later stages. A laboratory device, the four-stage Cascade impactor[20] is pictured in Figure 2. This device purports to collect droplets or particles in four sized cuts. The mass of material on each slide may then be conveniently determined by colorimetric, turbidimetric, spectrophotometric, or radiochemical techniques. Such data may be translated into particle size distribution if the size discrimination of each stage has been microscopically calibrated and is sharp. In actual practice, it is often found that sizes collected on the various stages tend to overlap. Recourse to microscopic counting of each slide, making use of the Cascade impactor to effect a preliminary separation, is frequently utilized in our laboratories. Improvements in Cascade impactors have been reported more recently in the basic studies of Ranz and Wong[21] and in a development of Pilcher.[22]

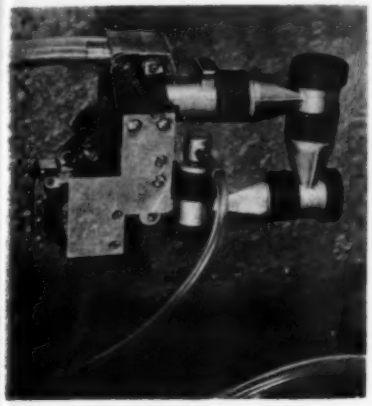


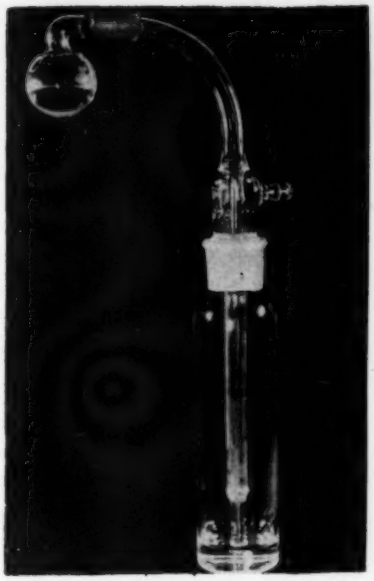
Figure 2
Cascade Impactor

Pre-Impinger

Particles from 30 microns down to one micron in size may conveniently be collected under fluid by passing a known volume of air dispersion through a device called an impinger. The collecting fluid may then be analyzed by physical chemical techniques and the concentration of material in the air computed. Experience has shown[23] that this impinger is a highly reliable collector. Some degree of size discrimination can be attained through an interesting adaptation of impactor techniques — the pre-impinger developed by May.[24] This device is utilized in conjunction with a standard collector such as an impinger (Figure 3) and serves the function of impacting out particles larger than about four to five microns. Analysis of the impinger fluid will yield an estimate of the fraction of airborne material less than 4-5 microns in diameter, while the pre-impinger gives an estimate of larger particles. The particle size cut-off is relatively sharp and can be adjusted by modifying the design of the unit. This is a very useful device for quick field sampling and in our hands is used quite frequently as a "go-no-go" technique for the determination of the relative quantity of large and small particles produced.

Electrostatic Charge Measurement

A number of investigations[25, 26, 27] have developed apparatus utilizing electrical charge measurements to infer particle count and size information. It is imperative that the method be carefully calibrated before it is used, and the apparatus is somewhat complex. The technique has been used quite successfully[28] to determine the particle distribution of large particles in a spray by sweeping a charged probe through the spray cone, counting and sizing the impulses.



Pre-impinger-Impinger
Sampler

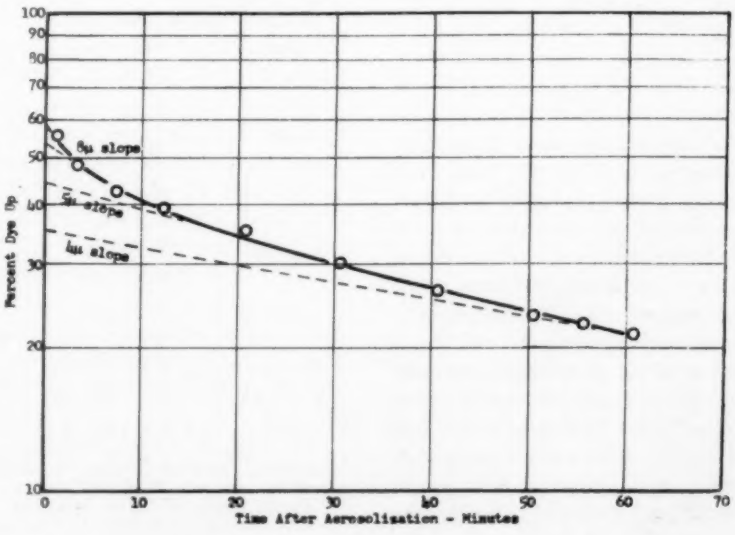


Figure 5
Typical Particle Size Sedimentation Curve Showing 4, 5, and 8 Micron Component Curves

Optical Methods

There are several sizing techniques based on the optical properties of dispersions of droplets in air.[29] These techniques may be based on the intensity of light transmission, the intensity of scattered light, and polarization of the scattered light. Recent work has been done on a device based on an idea of Gucker[25] which will rapidly measure light scattered from each individual particle to register a count on approximate size classes.[30] Basically these are techniques for the physics laboratory, although when suitably calibrated they can be applied to the routine repetitive determination of average or predominant particle size.

Stirred Sedimentation

Finally, reference should be made to the technique (developed with C. A. Boyd[31] and used at Aeroprojects during the last six years) involving stirred sedimentation in aerosol test cells such as those shown in Figure 4. If suitable precautions are taken to mix the cloud uniformly without turbulent impingement, and if the temperature and humidity are controlled, conditions necessary for sedimentation according to Stokes law can be achieved. The rate of settling of particles is routinely estimated by determining the concentration of the particles which remain airborne at various lengths of time. Concentrations are determined by sampling with an impinger bottle and analyzing the collecting fluid by standard chemical techniques, such as flame photometry, turbidimetry, colorimetry, or spectrophotometry. A typical mass-time curve plotted on semilogarithmic ordinates is shown in Figure 5. In approximately one and one half hours, this curve can be unscrambled into its representative straight-line components and the as-produced size distribution computed. Particle size reproducibility of the method gives 95% confidence limits of ± 3%. The method is fast, reliable, and relatively inexpensive, permitting ease of nozzle development or aerosol valve production control.

(*Continued on Page* 112)

New Raw Materials Seen As Practical for Nitrogen Aerosols

by K. F. Neulinger

Vice-President
Croda, Inc.

WITH the recent advent of nitrogen as a propellant, such products as hand lotions, hair dressings, baby oils and lotions, tooth-pastes, French dressings, barbecue sauces, soups, chocolates, and table syrups can be packaged in aerosol containers without serious modification of the formulae.

A large variety of raw materials will henceforth be used in aerosols for the first time. The following are a few suggestions of compatible materials that may find increased use as the result of new propellant developments.

Of prime concern to the formulator of this whole new "family" of pressurized products are bodying agents, which will enable the packager to produce stable emulsions for dispensing in a liquid stream that is not sticky, greasy, or "soapy". Fatty alcohols manufactured from sperm oil—and especially suitable for their good color, lack of odor, and absolute uniformity—have found new application in this field. Their compatibility is excellent and they possess good bodying, emollient and emulsifying properties. The range comprises cetyl, stearyl, and an almost water-white deodorized oleyl alcohol, as well as the interesting oleyl/cetyl alcohol, which is of semi-solid consistency.

These alcohols produce water-in-oil emulsions of smooth and satisfactory feel, and they improve the texture of creams of the vanishing type. Another use is as stabilizers in oil-in-water cosmetics and ointment bases. To fatty alcohols have been attributed the property of being able to act as effective penetrating vehicles for absorption into the skin, and they are also used for increasing the viscosity of many oils and soapless shampoos. Dermatologically innocuous, they are completely free from rancidity.

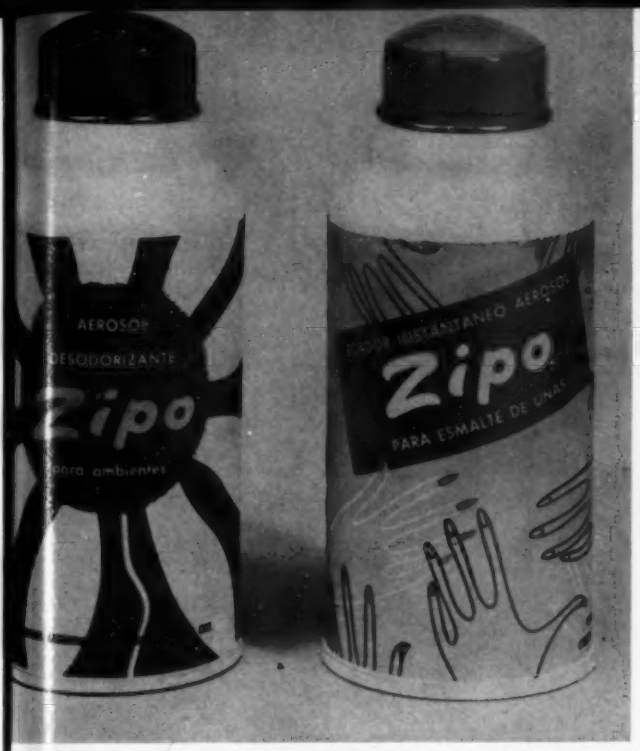
Another bodying agent of great stability and emulsifying power is the non-ionic ethylene oxide derivative of stearyl alcohol, which will emulsify strong electrolytes and other hard-to-emulsify ingredients. In the pharmaceutical field this material has the advantage of forming emulsions which can be autoclaved without deterioration. The FDA has declared non-ionic ethylene oxide derivatives, (called "Polawax" by Croda) safe for use as emulsifiers for cosmetic and topical drug uses. The new product is relatively easy to use and does not require a complex procedure of manufacture.

Apart from bodying properties, emolliency is also of considerable importance. The basic requirement is for an ingredient which will impart emolliency without increasing the drag or stickiness of the product. A logical choice is lanolin, an animal wax free from rancidity and with excellent emulsifying properties. As for lanolin derivatives, the two pure fractions of lanolin, lanolin alcohols and liquid lanolin esters, are very economical and will satisfy most of the packager's requirements.

Lanolin alcohols are also available as highly refined waxes of light yellow

(*Continude on Page* 113)

Croda makes fatty alcohols under the trademark "Crodacol", ethylene oxide derivatives of stearyl alcohol under the name "Polawax", lanolin alcohol called "Hartolan" and "Super Hartolan", deodorized lanolin esters called "Fluilans" and "New Fluilans", and Alginates under the trademark "Protanal".



Aerosols In Argentina

by *Alberto Trilles*
Aerosol Argentina SRL
Buenos Aires, Argentina

To the Editor:

After a good many technical drawbacks, Fotoquimica SRL, Buenos Aires, managed to market the first Argentine aerosol in late August.

It is entirely possible that the American manufacturer would consider our production line as primitive, since it consists of non-automatic equipment. However, when our production line was set up existing import restrictions forbade the acquisition of better equipment from abroad, and consequently we saw fit to have our filling machinery constructed locally.

We are grateful to your magazine for its informative articles on technical subjects, and also to DuPont, who, through their local distributors, seem to have spread the demand for pressure products throughout the country.

The first two wholly Argentine aerosols (in the photo at top) are a pine-scented room deodorant and a nail varnish dryer, both of which are being distributed by Redy S. A. It should be noted that the formulation and production problems were ironed out in our own laboratories.

We hope that the aerosol industry here will follow along its present lines, though at this juncture it would be difficult to predict what the future holds. Nevertheless, future prospects look extremely bright for the small aerosol filling firm, such as ours.

Antonio Arrigoni
FOTOQUIMICA SRL

AEROSOLS were first encountered by the Argentine public shortly after World War II, when a small quantity of war surplus insecticide "bug bombs" was imported and sold in Argentina. However, the term "aerosol" wasn't used in connection with these products, and later on difficulties in obtaining import permits (even for essential products) seriously handicapped the efforts of local firms interested in importing additional quantities of these early aerosol products. Thus, due to the impossibility of either importing packaged aerosol products, or producing domestically the necessary elements, the aerosol industry never was able to "get off the ground" during those early years.

It wasn't until March 1956 that anything substantial was done in the Argentine industry. In March of that year Hector Urbandt (of Liubitch e Hijos SRL), Ernesto Von Gerstenberg (Aerovalv), Dr. Enrique R. Rusconi (Sintarye SRL), and the writer became actively interested in aerosols. Though we had no real knowledge of aerosols (so little, that it seems incredible that we were able to influence the beginning of a new industry) we contacted a number of American firms, which supplied us with technical literature and data, and obtained a number of American and European aerosols, which we studied carefully part-by-part. Also, we used as a valuable source *Aerosol Age*. From all these sources we gained a concept of the tremendous growth of the industry in the U.S.; and, although we were fully aware that the purchasing power of our home market was considerably smaller than in the U.S., we were convinced that ample possibilities existed in Argentina.

Assistance and advice came also from sources nearer at hand. Dr. Carlos Lambardi, who is in charge of the aerosol operations of Compania Sud Americana Kreglinger Ltda., S.A., (local representatives of DuPont), gave us valuable advice.

We began our first trials with "Algeon" (the commercial name for propellants manufactured by Fluoder SRL) using locally-produeed cans and valves. In the filling plants where we set up our experimental aerosol equipment, practically all of the fillers in turn set up their own pilot plants—a promising sign—and we were thus able to contact several prospective clients and show them some "home-made" samples. Due principally to the high cost of propellants, these first contacts were not

(*Continued on Page* 107)

This is the second and final part of Mr. Pickthall's article. In the previous article he summarizes many of his technical objections to Mrs. Wiener's findings. A brief summation by Mrs. Wiener appears on the facing page—*The Editor.*

More on . . .

The Uncoated-Glass Aerosol Controversy.....II

By Jack Pickthall, F.R.I.C.
Chief Chemist, Polak & Schwarz (England) Ltd.
Enfield (Middlesex), England

MRS. WIENER'S argument that we do not cease to use cars, electricity, drugs, gas and cleaning fluids, because such commodities may lead to deaths is hardly valid here. What we have done (and will continue to do) is to make them as safe as humanly possible; to spend millions of dollars and years of time in this endeavor; to bring in legislation and laws to reduce the risks. In the aerosol industry we have a simple method of reducing — and reducing to a considerable extent — the dangers inherent in an aerosol bottle, namely, the application of a plastic coating. Mrs. Wiener says that, to the best of her knowledge, not one *serious* (my italics) case of injury has been reported. Does this imply that people have in fact been injured even if not seriously, by breaking aerosol bottles?

It is possible to read from a later paragraph that I have suggested that a beverage bottle will not become agitated on dropping. Perhaps this was not the intention, but I would point out that I have shown experimentally the amount of agitation required to develop the full pressure in the beverage bottle and even went to the trouble in one experiment of shaking the bottle thirty times before dropping it onto the concrete from the hand and without any protection whatever. In any case, the fact that the beverage bottles were dropped from the same height as the aerosol bottles during the taking of the photographs should not be ignored. It is not particularly relevant that beverage bottles *are* stored in refrigerators to the point where ice can be formed in the bottle, but someone might well stand an uncoated glass aerosol bottle on a radiator or leave it in the sun.

At one point in Mrs. Wiener's article there is a statement that can be judged as an acknowledgment of my contention that one cannot say that beverage bottles are more dangerous than uncoated aerosol bottles — simply by referring to pressures and resistance to breakage.

Mrs. Wiener says we should be realistic and compare facts as they occur in every day living and goes on to say that uncoated glass aerosols are produced in the U.S.A. in sizes from a quarter to about two ounces, but that carbonated beverages are sold in containers up to one quart. She claims that a ¼-ounce unprotected glass bottle has a very small chance of breaking and says it may be regarded as even safer than the large beverage bottle. She then changes her position completely by writing: "Of course, large aerosol bottles, especially those over two-ounce size, properly protected by a plastic coating or its equivalent, are *much safer* (my italics) than uncoated ones of the same size." If this is her carefully considered opinion, and I am sure it is, then we are agreed. This is exactly what I have said. Mrs. Wiener concludes with the comment that "There is no undue risk involved in their marketing as long as their construction, the formulations packaged and filling procedures fully conform to basic safety principles." I agree, and one basic safety principle is a plastic coating.

From Mrs. Wiener's article, one cannot escape the implication that I am more-or-less alone in my contention that uncoated glass aerosols should not be sold to the public. As I have previously said, British fillers as a whole will not fill such bottles. When I recently wrote to the States for information on uncoated glass aerosols, I was surprised and delighted to hear that the person I approached had difficulty in finding uncoated bottles on the market. Joseph S. Lann of the Kinetic Laboratory of E. I. duPont says in his survey of Glass and Plastic Aerosol Containers (*American Perfumer*, January 1957) "The statistics on their respective sales volumes (coated or uncoated) are somewhat difficult to determine, but during 1955 probably no more than about 10-15% of the total glass aerosols in the U.S. were uncoated." I have information to the effect that many leading American fillers refuse to pack uncoated bottles and I have spoken to or corresponded with Americans (all people of repute in the Aerosol Industry) who are with me 100% on this matter.

DR. W. RAEHS' contribution on "Cosmetic Aerosol Containers" (*Perfumery & Essential Oil Record*, June, 1957) indicates that Britain is not alone in its decision to resist the temptation to sell uncoated glass aerosols. He writes: "The most popular packing unit for liquid toiletry goods is, of course, the glass bottle. Thus, it is easy to understand that a trend has developed to pack aerosol sprays in glass as well, and rely on its chemical inertness. Yet, business people and those who have not thoroughly studied the subject may undervalue the hazard in these packs. Static, constant pressure at the inside of the bottle is well tolerated, but tensions in the void — which are hard to control and remove completely in mass production—favor breakage and may finaly endanger the producer's success in the market. Any slight shock is a hazard in this case, and a drop to a hard floor will, inevitably, result

(*Continued on Page* 105)

A Brief Answer To Mr. Pickthall's Arguments

by **Maria V. Wiener**
Technical Director
Fluid Chemical Company

THE comments in "The Uncoated Glass Aerosol Controversy" (*Aerosol Age*, November-December, 1957), about my two articles "Safety Factors in Packaging Glass Aerosols" and "How Safe are Uncoated Glass Aerosols" (*Aerosol Age*, August, 1956 and July, 1957, respectively) might suggest misleading impressions on various points, hence a further clarification of my principal viewpoints is necessary.

The intention of the July, 1957 article was to show that Mr. Pickthall used oversimplification in his calculations, to exaggerate his conclusions and to condemn all uncoated glass aerosols without exception. On the basis of years of experience with production of many millions of all types of glass aerosols at Fluid Chemical Co., our conclusion is that the aerosol industry has a proper application for both coated and uncoated bottles. We are convinced, for an example (from statistical drop test data) that a 10cc uncoated aerosol bottle has a very small chance to break; and, since it contains a very small amount of liquid propellant, it is *relatively* safer than a quart size beverage bottle or even a four-ounce plastic coated bottle. Further, if all types of bottles of the same shape, quality, and size are compared, the beverage bottle will be the safest. Finally, if the formulation contained in the coated and uncoated glass bottles were the same, the properly coated one would present a safer package. We have expressed exactly this viewpoint in both papers and wonder why the British author tries to create the impression that we changed our opinion.

In our earliest article, in August, 1956, it was emphasized that improper formulations in inadequately designed glass containers are unsafe. The total conversion volume of the liquid propellant into gas was calculated with the remark, however, that "fortunately, not all the propellant flashes instantaneously." For this reason the figure of *total* volume conversion of liquid propellant into gas should not be confused with the *instantaneous* flashing amount of propellant, (as calculated in the July, 1957 article).

THE beverage bottle cannot be directly compared with the aerosol bottle; and Mr. Pickthall was not the first one with this observation in his February, 1957, article. We came to this conclusion at least a few years earlier and published same in August, 1956. In the July article we stated once again that "carbonated beverages do not project glass fragments as far after breakage as do the true aerosol bottles of the same size." There is no ground whatsoever for any suggestion that we have changed our ideas.

Most of the details in the "Controversy" could be disputed and refuted, but there is no point in quibbling about minute particulars; and therefore, we prefer to summarize our basic thoughts about the main subject.

Flying glass fragments always present a potential hazard. Glass can injure even when an empty bottle breaks and shatters when dropped from 6 feet 6 inches on a tile bathroom floor. Since the size of the bottle and the mass of the contents have a major influence on the breakage factor (and larger aerosol bottles ordinarily contain greater quantities of liquid propellant responsible for the velocity of the broken glass pieces) we do not recommend the production of uncoated true glass aerosols *over* the two-ounce size. Well designed and properly manufactured uncoated glass aerosols under the two-ounce size (filled with suitable formulations) are usually safer than four-ounce or larger size coated glass aerosols of unfavorable shape and with improper contents. In other words, small properly-made uncoated aerosols generally are at least as safe as many large coated aerosols now on the market.

It should be stressed here that the plastic coating offers an additional protection only if appropriately made and applied, otherwise the ballooning followed by bursting does not prevent the shattering of the glass. Many researchers, who were testing and evaluating different aerosol containers by the thousands, obtained the same results. Fortunately, this type of breakage occurs rather seldom, and therefore, cannot always be detected within a small number of tested units.

In conclusion we would like to point out that both coated and uncoated commercial aerosol bottles are relatively fragile, and therefore, present some hazard when *mishandled*. *Small uncoated* aerosol bottles offer *relatively* less risk in marketing than *large coated* bottles, especially if the shape and the formulation of the latter are not properly designed. This of course, is the writer's opinion, and anyone interested could determine his own criterion. It is true that the safety features of every manufactured product could still be improved. For an example: A coated glass aerosol could be encased in a steel container for additional protection. This might be considered desirable by some, but surely would be neither economical nor competitive. It must be realized that everything we do today is surrounded by risk, and that it is nearly impossible to make any product absolutely safe. The assumption of a certain amount of risk is the essence of business and free enterprise.

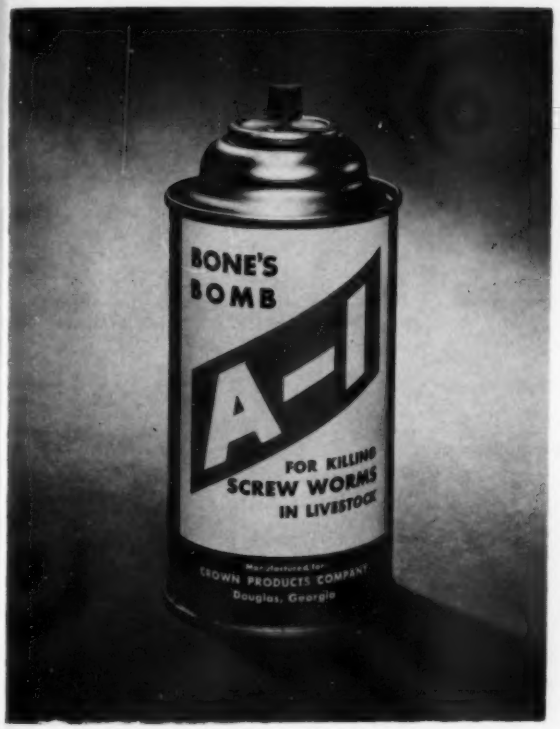
Also it should not be overlooked that a small number of experiments conducted under extremely unfavorable conditions do not necessarily give

(*Continued on Page* 116)

Knomark Manufacturing Co., Brooklyn, recently increased its aerosol line to include a wide variety of pressure-dispensed shoe products. Packed in Crown "Spra-tainers", the new line includes: *Esquire Corkette Cleaner* (a spot and stain remover for corkette, Danish pig, etc.); *Esquire Water Shed* (for waterproofing leather); *Esquire Suede Renew* (a beauty treatment for all suedes). *Esquire Spot Remover* (a dry cleaner); *Esquire Shoe-N-Bag Beauty* (for all smooth leathers); *Esquire Foam Saddle Soap* (leather conditioner); and *Esquire Foam Lanol White* with a mohair applicator (for all white shoes).

Helene Curtis Spray Net, in a dramatic new package, was recently introduced nationally by Helene Curtis, Chicago. It is packaged in a new container design by Walter Frank, Elmhurst, Ill., with a special cap manufactured by Sterling Seal Co., Erie, Pa.

NEW PRODUCTS AND PACKAGES



Bone's A-1 Bomb, for killing screw worms in livestock, is a new product of Crown Products Co., Douglas, Ga. It is being packaged in a Crown can with a Precision valve, by Aerosol of Georgia, Atlanta custom filler.

Top Kick shaving cream is a new product type being produced by Acrolite Products, Inc., West Orange. The lanolin shave cream will be marketed in post exchanges and ships stores in service installations all over the world.

Workable Fixatif is a new product of Krylon, Inc., Norristown, Pa., which is said to dry faster and more odorless than other fixatives. It does not distort original colors and shadings. It will retail in art stores at $1.95 for the 16-ounce and 98c for the six-ounce container.

Powr-Pak, Inc., Bridgeport custom filler, has announced the availability of liquid stream dispensers, drop dispensers, and inert-spray dispensers—all the result of the company's research done with inert gases for aerosol propulsion. Key to the new range of products is to be a new dispenser valve.

A Summary of New Changes in

ICC Aerosol Regulations

A SUMMARY of existing Interstate Communications Commission regulations, as they apply to aerosols, was released last month by the sales service department of Pennsalt Chemicals Corp., Philadelphia. The charts include all revisions up to October of this year, and are arranged so that the regulations are considered from the viewpoint of the container rather than the pressure limits. The charts have been copyrighted by Pennsalt.

Pennsalt cautions that "the charts are believed to represent a correct interpretation of the regulations included in H. A. Campbell's Tariff No. 10 (effective June 19, 1957). However, no warranty is made, nor is any to be implied, with respect to the completeness or accuracy of these data or with respect to the correctness of the company's interpretation of the regulations."

In releasing the charts for publication, David S. Tillotson, of Pennsalt's sales service department, had this to say: "Since safe practices are a by-word in the aerosol industry we feel that this chart will be of great value to the industry in the proper and safe interpretation of the ICC regulations."

Revised October 1957

ICC Regulations* Pertaining to Aerosols

CHART A—AEROSOLS AS DEFINED IN PARAGRAPHS 73.115 and 73.300 (a) (b) 2, 3, 4

Type of Container and Maximum Capacity	Containers not exceeding two inches outside diameter and of not more than four fluid ounces capacity. 73.302 (a) 1	Metal containers of not more than one quart or other containers not more than one pint (16 oz.) 73.118 (a) (b)	Metal container up to 32 cu. in. (17.73 oz.) 73.302 (a) 3	Specification 2P Metal Container 73.302 (a) 3
Dispensing Pressures	No limitations	Not over 25 psig at 100°F.	Up to 40 psig at 70°F. 73.302 (a) 3	Up to 60 psig at 70°F. 73.302 (a) 3
Specific Limitations	None		The flash point as determined by the Bureau of Explosives Method must not be less than 20°F. Liquid content of material and gas must not completely fill the container at 130°F.—73.302 (a) 3	
Packaging a. Inner b. Outer	None None	Metal 73.118 (a) Other 73.118 (b) Strong outside containers 73.118 (a) (b)	Metal	Specification metal 2P containers
Labeling Required	No labeling required under ICC Regulations; however other regulatory agencies must be checked to determine their label requirements for each type of aerosol.			
Marking Required	None	Name of contents on outside container is required for shipments via carrier by water	Name of contents on outside container is required for shipments via carrier by water	
Testing Required	None	None	Each and every completed container must be heated to 130°F. without evidence of leakage, distortion or other defect. 73.302 (a) 3	

* The data in these tables are based on I.C.C. Regulations pertaining to Aerosols found in H. A. Campbell's Tariff #10 (effective 6/19/57) and is believed to represent a correct interpretation of these Regulations.
However, we make no warranty, nor is any to be implied, with respect to the completeness or accuracy of these data or with respect to the correctness of our interpretation of these Regulations.

Notes (1) Revised October 1957 in accordance with H. A. Campbell's Tariff #10 dated June 19, 1957 by David S. Tillotson and Allen B. Reed, Jr. Isotron Sales Services Department, Pennsalt Chemicals Corporation.
(2) Previously compiled and copyrighted by David S. Tillotson and John Haslip, January 1957.

CHART B—NON-FLAMMABLE AND NON-POISONOUS AEROSOLS

Type of Container and maximum capacity	Containers not exceeding two inches outside diameter and not of more than four fluid ounces capacity 73.302a (1)	Metal, Glass, Plastic etc. containers—No size limitations	Metal containers up to 32 cu. in. (17.73 oz.) 73.302 (a) 3	2P specification metal containers 73.302 (a) 3 78.33	2P specification metal container with safety device 73.306 (b) 1 78.33
Dispensing Pressures	No limitation	Less than 25 psig at 70°F. and 89 psig at 130°F.—Such aerosol materials are not covered by ICC Regulations	Over 25 psig at 70°F. up to 40 psig at 70°F.	Over 40 psig at 70°F. up to 60 psig at 70°F.	Over 60 psig at 70°F. up to 70 psig at 70°F.
Specific Limitations	None	None	Liquid content of the material and gas must not completely fill the container at 130°F. 73.302 (a)	Liquid content of the material and gas must not completely fill the container at 130°F. 73.302 (a)	Must have safety device (such as fusible plug in container) approved by Bureau of Explosives 73.306 (b) 1
Packaging a. Inner	None	None	Non refillable metal container 73.302 (a) 3	2P specification metal containers	2P specification metal container with safety device
b. Outer	None	None	——	——	Strong wooden or fiber boxes designed to protect valves
Labeling	No labeling required under ICC Regulations; however other regulatory agencies must be checked to determine their label requirements for each type of aerosol.				
Marking	None required	None required	Name of contents on outside container is required for shipment via carrier by water 73.302 (a)	Name of contents on outside container is required for shipment via carrier by water. 73.302 (a)	Name of contents plus "Inside containers comply with prescribed specifications" 73.306 (b) 1
Testing	None required	None required	Each completed container filled for shipment must have been heated until content reached a minimum of 130°F. without evidence of leakage, distortion, or other defect.		

ICC Regulations Pertaining to Aerosols

CHART C—NON-FLAMMABLE AND NON-POISONOUS AEROSOLS (EXCEPTIONS TO OTHER PRESSURE CATEGORIES)

Type of Container and Maximum Capacity	Metal Container up to 31.83 cu. in. (17.6 oz.) capacity 73.302 (a) 7	Metal can—No size limitation specified 73.302 (a) 5	Metal container up to 31.83 cu. in. (17.6 oz.) capacity 73.302 (a) 9
Container content	Biological products or medical preparation which will be deteriorated by heat and compressed gas or gases	Foodstuffs or soaps in metal cans with soluble or emulsified compressed gas	Non-liquified compressed gases plus non-poisonous and non-flammable contents
Dispensing Pressure	Not over 40 psig at 70°F. 73.302 (a) 7	Not over 100 psig at 70°F. or 135 psig at 130°F. 73.302 (a) 5	Not over 90 psig at 70°F. or 125 psig at 130°F. 73.302 (a) 9
Specific Limitations	Liquid content of the product and gas must not completely fill the container at 130°F. 73.302 (a) 7	Container must withstand a pressure of two times the pressure of contents at 70°F. or one and one-half times the pressure of the contents at 130°F. whichever is the greater. 73.302 (a) 5	Container must withstand a pressure of two times the pressure of the contents at 70°F or one and one-half times the pressure of the contents at 130°F. whichever is the greater—73.302 (a) 9
Packaging a. Inner	Non refillable metal containers	Metal cans	2P specification metal cans 78.33
b. Outer	Not specified	Not specified	Not specified
Labeling	No labeling required under ICC Regulations; however, other regulatory agencies must be checked to determine their label requirements for each type of aerosol		
Marking	No marking required except the naming of contents on outer container for shipment via water. 73.302		
Testing	One completed container out of each lot of 500 or less, filled for shipment, must have been heated until contents reached a minimum of 130°F. without evidence of leakage, distortion, or other defect 73.302 (a) 7	None required	None required

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AEROSOLS in review

APPROXIMATELY 53% of U. S. women now use hair sprays, according to the recently released "1957 Beauty Secrets Report," a survey conducted by *Good Housekeeping* magazine. The report, which is regarded by the toilet goods industry as being a fairly accurate measurement of cosmetic wage trends among American women, is compiled from a special questionnaire sent to 2500 panel members throughout the U. S.

Pursuing the hair spray subject further, the women who said they use hair sprays regularly were asked "For what purpose?". 24% answered "to set pin curls" and 92% "to hold hair in place." (Since some of the questions permitted more than one answer, the respondents' answers often total more than 100%.) The hair sprays were indicated to be only moderately successful in postponing the need for the user to get a fresh permanent wave. Only 9% reported that they had permanent waves *less* often than before they used wave sets, 1% said *more* often, 65% reported about the same, and there was no answer from 25%.

Of the women who use wave sets to "hold hair in place" 16% used their hair spray once a week, 21% twice a week, 13% three times a week, 6% four times, and 21% five or more times. To set pin curls the total of women who use their hair sprays as often as once a week amounted to 37%, twice a week 21%, three times, 8%, four times, 3% and five times, 3%.

In brand preference, 40% said they used Revlon, 24% Helene Curtis, 6% Breck, 4% Avon, 2% Lentheric, 2% Nestle, and 20% "other."

In the category of deodorants and antiperspirants, aerosol and squeeze-bottle dispensed products were grouped in the survey and together garnered 21% of the total—more than all other classes save "cream in jar." Of those using deodorants in summer, 45% said they use them twice a day, 56% once a day. In winter 11% use deodorants twice a day, 63% once a day, and 12% every other day.

As to the most important feature demanded of a deodorant or antiperspirant, 61% answered "prevent perspiration odor," 44% "check perspiration," 41% "non-irritating," 37% "quick to use," 32% "harmless to clothes," and 22% said it must have "pleasant odor."

Aerosols fared rather poorly in the two other categories, colognes and suntan lotions, in which they were mentioned. For type of container preferred for toilet water or liquid colognes, aerosols ranked a poor third, with 8%. (Plain bottle and bottle with atomizer top had 54% and 36% respectively.) For suntan preparations used, aerosols fared even worse, with only 5% preference. Far ahead were non-oily liquids, with 34%; oily liquids, 18%; creamy liquids, 22%; and creams, 13%.

The survey made no endeavor to determine which of the respondents actually knew what an aerosol was, or to determine whether any of them could distinguish between an aerosol and a conventional non-aerosol spray device. However, the questionnaire did specifically list "aerosols" in all the categories in which the respondents used the term in their answers.

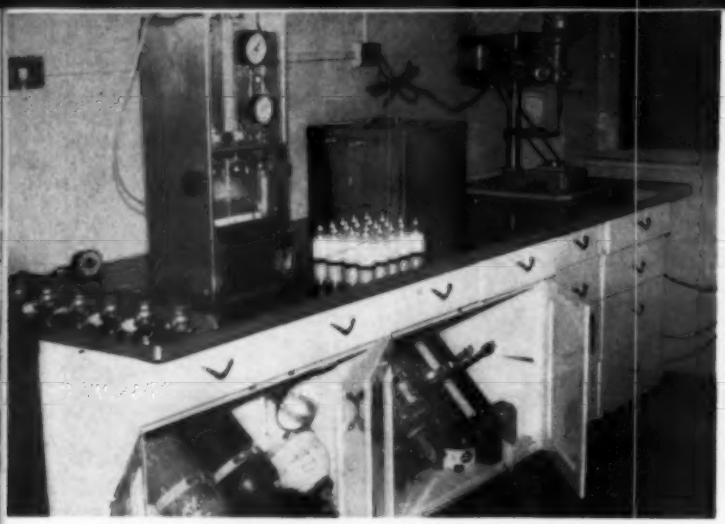
BRAIN surgery can be performed on women without the need for head shaving, declared *Time Magazine* in September. The trick is worked through use of a non-lacquer aerosol wave set compound.

"Before surgery, hair is shampooed repeatedly with a surgical detergent enriched with hexachlorophene to sterilize the scalp. The hair is combed carefully away from the place of incision, made to lie flat and remain securely in place by spraying with a non-lacquer wave-set compound. The operation is performed in a normal manner, but surgeons need expose less than three-quarters of an inch of scalp in making the incision." The method was perfected by Dr. Jonathan M. Williams of George Washington University.

THE November issue of *The Crown*, monthly magazine of Crown Cork & Seal Co., Baltimore, pays a pictorial visit to the recently expanded plant of John C. Stalfort & Sons, Inc., in Baltimore, where Stalfort is operating three separate double-filling lines, each with a capacity of 85 units per minute, plus a smaller fourth line for small lot filling.

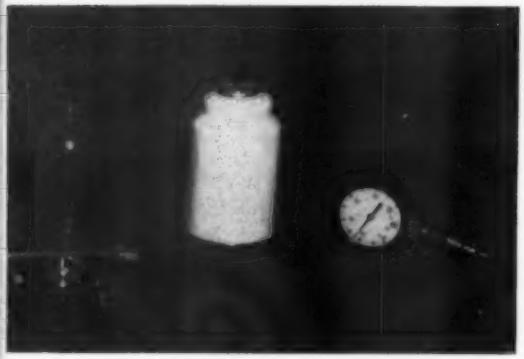
One of Stalfort's cold fill lines is using a "one-stage" fill. "Here the concentrate (or product) and propellant are pre-mixed in a pressure tank and filled in a single operation. These pressure tanks are of 10,000

In this column aerosol subjects, appearing in other domestic and foreign periodicals, will be reviewed and their findings summarized. It is felt that this service will enable the reader to keep abreast of most of the important contemporary articles about the industry, even though they may appear in other periodicals. Since there is a chance that some pertinent articles may be overlooked, it will be helpful if readers will call our attention to any they judge important enough to review.
The Editor



• Complete laboratory set-up including cabinets, tank racks, formica top, shut-off valves, pressure filler, acetone-dry ice cooler, drill press capper, hand pressure tester, water bath, and hand valve crimper for metal cans.

• Small production line "Cold Filler", capable of filling approximately 1,000—6 oz. cans per 8 hour day with one operator. Two different propellants can be filled and twenty cans and product may be precooled in the cold box. Price $2038.14.



• Here's all you need to make your own refillable aerosol samples in less than a minute without investment in expensive equipment. Simply pour your product into dispenser can, fasten valve in place with screw retaining piece, and fill with propellant to proper pressure test. Prices: 6 sets, including 2-oz. plastic-coated bottles, screw-on tops and valves — $23.50.

• Can piercing pressure determination apparatus for very accurate pressure determination. May be immersed in hot water. Price $77.85.

• Laboratory aerosol pressure filler for metering liquids under pressure into aerosol containers. Safety feature is Burette encased in heavy Lucite tube. Sturdy aluminum stand and base available with 30 ML or 100 ML Burettes. (Price $120)

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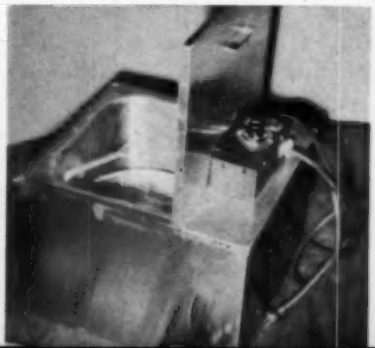
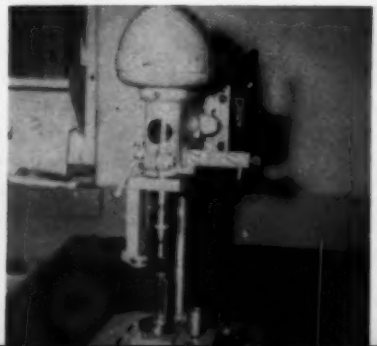
• Sampling cylinder for draining off samples from large cylinders containing liquefied gases under pressure, as per Du Pont Kinetic Bulletin B-8. Price $49.53.

• Constant temperature water bath with inside dimensions of 14" x 16" x 11" deep. This water bath has fiber glass insulation with thermostatic control and immersion water pump circulator. (Price $188.50)

• Drill press capper for rolling and fastening aluminum or steel valves to top of glass bottles. (price—$198.00) Many odd shaped and sized bottles can be capped. Attachment for crimping valves on metal cans (1" opening) (Price—$150.00)

• Stainless steel hot box for accelerated shelf tests. Heavily constructed with adjustable expanded metal shelves. Inside dimensions—24" x 24" x 48". (Price—$475.00)





pounds capacity and "lithocoted" (baked phenolic-resin coating) on the inside. They are mounted on a specially constructed lever fulcrum system, the scales being controlled by a series of automatic solenoid valves. Each ingredient charged into the tank is thus automatically weighed. After the tank is evacuated to negative pressure, a starting weight of zero is punched and recorded. The scale is then set for the proper formula weight of concentrate, after which the concentrate is charged into the tank and automatically shut off when the pre-set weight is reached. Again the punch card records the weight and is used as a permanent record by the quality control department. Propellant is charged into the tank and handled in the same manner."

"After mixing, the quality control department takes a sample that has been passed through a refrigerated system, the temperature of which is below the lowest boiling point component. The laboratory then makes a densimetric determination to show the percentage of active ingredients as compared with a previously determined standard. Production is then notified that the batch is acceptable."

•

THE *Financial Times*, London, a leading English financial newspaper, recently carried a column (entitled "Products Under Pressure"), in which it is predicted that the English aerosol market for 1957 will reach nine million containers. This will be a substantial increase over the 7.5 million containers packaged in 1956.

The *Times* also gave the following cost breakdown for a 12-ounce aerosol insecticide costing $1.47:

Retailer's margin	$.48
Wholesaler's margin	.27
Can & Valve (tin)	.10
(aluminum)	.14
Plastic Cap	.01
Propellant	.21
Concentrate	.14
Filling Costs, Overhead Profit	$.21 or $.24

Closer analysis of the *Financial Times* article, according to the October issue of *Manufacturing Chemist* British periodical, would seem to indicate that "If the retailer's margin is any guide, aerosol insecticides seem difficult to sell!"

"According to the *Financial Times*, the retailer makes a profit of 3s.6d. (49¢) on every half-guinea ($1.47) can. Add to this the wholesaler's margin of 1s. lld. (25¢) and it is seen that over half the price of the can is distributor's profit. It seems extraordinary that such a heavy financial inducement is needed to persuade people to buy the product that has so many advantages over the old methods of dispensing insecticides.

"The manufacturer does not get nearly so much. He has to make his profit out of the 1s 6d. (21¢) or so left for filling costs, overhead, etc." The *Manufacturing Chemist*, after recounting what each compound costs, points out that the actual insecticide cost only one shilling (14¢).

"Some people may thing that 9s. 6d. ($1.33) is a lot to pay for the convenience of pressing a button to dispense a shillings worth of insecticide."

•

THE October issue of *Drug & Cosmetic Industry*, in a comprehensive article on "Pressurized Nitrogen Aerosols" by Joseph Kalish, makes an important point of the "unlimited enthusiasm" on the part of its developers for this new method of dispensing foods, cosmetics, and pharmaceuticals. Crediting for the development, not only Precision Valve and Aerosol Techniques, but Crown Can and Continental Can as well, the article lists the various advantages of packaging with nitrogen as the propellant.

"Essentially, the nitrogen pressure pack, free from patent restrictions, provides new convenience at a low price for dispensing all products from thin liquids to thick pastes with viscosities up to 100,000 cps in their original, unaerated form from cans, and free from the restrictions imposed by capped bottles, jars, or collapsible tubes."

Mr. Kalish warns, however, that "Each product will represent a new problem in the balance of head space, valve openings, and dip tube diameter. To discharge the desired quantity of product for a specified time (depending upon flow qualities), the head space will determine the amount of gas available for propulsion, while the dip tube and valve openings will determine the discharge. The upper limit of viscosity of the product to be dispensed under pressure, is set not only by flow of the product through the dip tube and the valve

CANCO IS KEEPING PACE WITH THE BOOMING AEROSOL INDUSTRY!

As fast as the aerosol industry is growing, Canco is expanding even more rapidly within it!

For example, Canco is building a much greater volume of pressure container sales and is regularly increasing its production facilities, all of which contributes to the industry's progress. Canco now makes pressure cans in every one of the Company's divisions, from coast to coast!

The Canco line is complete, too—all types, all sizes of containers in a choice of standard 1" cup-opening tops or various economical one-piece tops.

Canco pressure can specialists are constantly enlarging their "know-how" in containers, propellants, valves, product formulation, and container specifications. Let them help you solve your problem! No matter what your pressure product, conventional or totally new, Canco is eager and prepared to help you develop it.

In the coming months, you'll be hearing a lot more about Canco's many exciting projects in the aerosol field. During 1958, Canco will offer the first successful round-the-can lithography over a soldered side-seam. You'll also hear more about Canco's development of special combinations of propellant, valves and product to satisfactorily dispense pressure packed food items.

And—you'll be surprised with news of pressure cans made from novel materials!

* * *

Canco *is* growing, and with one aim in mind—to serve you better!

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orifices, but also by the flow to cover the bottom of the tube when the can has been placed on its side and then turned into an upright position. A special filling technique is required to leave the dip tube filled, otherwise a hole would be blown in the mass, with loss of gas, when the first discharge is attempted."

As did *Aerosol Age* in its own article, Mr. Kalish points out that no oxidation is possible in the nitrogen-propelled product. He also declares: "The absence of liquefied gases also seems to have eliminated seepage loss. Although usual aerosol packages lose some weight on standing because of losses through the gasket, nitrogen pressure packages remain constant in weight over long periods of time."

As possible uses for nitrogen powered products, Mr. Kalish says: "Baby oils and lotions, hand lotions, hair dressings can be packaged in this manner without modification. Dentifrices may require slight reduction in their viscosity. Shampoos packaged with nitrogen would not foam on the hair until rubbed in, apparently a consumer preference that has retarded the acceptance of standard aerosol shampoo packs."

A DISCUSSION of the factors that go into a person's competency as an evaluator of odors is the subject of an article in the October-December *Aromatic Chemicals*, an English-language quarterly published by Polak & Schwarz, Zaandam, the Netherlands. This ability of evaluating odors is an important one in the determination of the various components in aerosol formulations.

The periodical points out that a person's competency as an odor evaluator is "conditioned to a large extent by his ability to recognize and compare the odor pictures perceived by him. In this respect we can distinguish between four different types of abilities:

"1. *Discriminating power.* This determines the observer's ability to obtain an unambiguous and distinct odor picture of a given product, as opposed to a vague and ill-defined one. This ability can be developed by training. The use of pure products is vitally important in this connection, as it is the only way in which an absolutely unequivocal odor picture can be obtained.

"2. *Associating power.* This may be defined as the observer's ability of quantitative comparison of the odor picture perceived by him with the standard odor picture already familiar to him as representing the ideal quality of the product in question. In this case, therefore, the difference between the two *subjective* odor pictures is expressed quantitatively. This ability is consequently of the greatest importance when it comes to the olfactory evaluation of a product, for after all it governs the ability of an observer to appraise the olfactory qualities of that product.

"3. *Estimating power.* This is the observer's competence in the matter of comparing the *subjective* olfactory evaluation quantitatively with the *objective* evaluation of the product, assessed with the aid of analytical values, such as purity, optical rotation, refractive index, spectrum, and so on.

"4. *Power of reproduction.* An observer can only be qualified competent as an evaluator of odors provided he is able to repeat his olfactory evaluations to a reasonable extent."

Aromatic Chemicals suggests that it is possible to form an impression, in terms of statistical figures, of these four abilities in respect to a given product and a given person.

GRISEOFULVIN, the first antibiotic for horticultural use released by the Ministry of Agriculture, Fisheries, and Food in Great Britain, is described in an article in *Chemical Age*, English trade weekly. The material, which was used in aerosol formulations for field trials, is being produced by Glaxo Laboratories, Ltd., Barnard Castle, and marketed by a subsidiary, Murphy Chemical Co., Wheathampstead, Herts.

The antibiotic, according to *Chemical Age*, has demonstrated a potential for control of pathogenic fungi in plants. Researchers have concluded that "it possesses undoubted activity as a systemic fungicide against the well-known foliage pathogen, early blight of tomatoes *(Alternaria solani)* and also gray mould of lettuce *(Botrytis cinerea)*. More recently it has been found that griseofulvin applied to foliage becomes distributed throughout the plant, including the roots."

A number of trials were carried on for the control of gray mould on lettuce, using griseofulvin as a 3% aerosol concentrate, and "promising" results were obtained. "The aerosol was applied at one fluid ounce to 1200 cubic feet, to give approximately the same amount of toxicant per given area as was applied in a 3% dust."

". . . Murphy Chemical consider that the use of the new antibiotic and the consequent reduction of loss from *botrytis* could result in a gain to growers of as much as £190 ($342) per acre, where the full crop is assessed at £1500 ($4200), while the cost of treating with griseofulvin would be between £35 ($98) and £52 ($145)."

SOME doubt as to the effectiveness of gibberellins was expressed in a talk by Curt Leben and E. F. Alder of Eli Lilly & Co., before members of the Canadian Agricultural Chemicals Association at their recent meeting in Mt. Tremblant, Canada, Sept. 16-18. The authors declared: "Right now we are less optimistic about the eventual usefulness of gibberellic acid for increasing the yields of our annual seed crops, such as wheat, corn, oats, and soy beans, by treating these crops during the growing season. . . . Similarly, more work will be necessary before we will know if seed treatments will be useful on a wide scale. . . ."

The authors suggest that careful study of crop harvests for the 1957 season and further observations on whether gibberellins are capable of speeding up germination in cold ground will be useful in answering these questions. They also point out that the effects of gibberellic acid tend to wear off. "The time this takes

(*Continued on Page* 109)

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New Water-Soluble Resin is Introduced by Union Carbide Corporation

AN UNUSUAL new class of water-soluble resins with a combination of properties ideally suited for diverse industrial applications, ranging from packaging films to binders in aerosol hair sprays, has been developed by Union Carbide Chemicals Co., Division of Union Carbide Corp., New York. The resins were announced last month at a special press conference in New York.

Trade-marked "Polyox", the new resins are said to be exceptionally high - molecular - weight polymers of ethylene oxide. They can be cast, calendered or extruded into tough, inherently flexible films, and one remarkable feature is that they are completely soluble in water at low concentrations. This latter characteristic is said to give the resins a greater thickening power than any material now commercially available. Other significant properties of "Polyox" resins are their resistance to biological attack, resistance to oils, and greases, low moisture pickup in dry form, and compatibility with other types of polymers (such as polyvinyl acetate).

Preliminary evaluation and research work carried out by Carbide and independent laboratories indicate that the new materials will have broad application in the drug, cosmetic, detergent, and chemical specialty fields.

In addition to use as a binder for aerosol hair sprays, the material's resistance to adhesion with glass, wood, and metal is expected to permit its use in a wide variety of industrial mold release formulations.

A major drawback to immediate use of the resins in conventional aerosols is the fact that they are insoluble in the halogenated hydrocarbon propellants 11, 12, 111, and 113. However, they *are* completely soluble in methylene chloride and water. Union Carbide researchers are still studying the problem of the resins' solubility with other leading aerosol component materials, and are also conducting further tests to determine possible solubility in fluorinated hydrocarbon propellants in combination with other materials and solvents.

IN HAIR sprays (the experimental aerosols used by Carbide researchers employ methylene chloride alone as the propellant) "Polyox" forms a strong elastic film that is reported to have less tendency to flake and become sticky than other materials now in use. One-half to one per cent by weight of the total formulation is suggested. In antiperspirants, the resins provide good viscosity control and are compatible with aluminum salts.

The high degree of flexibility and strength of "Polyox" resins suggest such aerosol pharmaceutical uses as that of a film former and binder in calamine lotions and similar topical sprays, plus wide use in aerosol-applied plastic bandages.

The "Polyox" resins are completely soluble in water at low concentrations to form slightly cloudy, moderately alkaline solutions. Varying viscosity at different concentrations for the four grades currently being produced was demonstrated at the press conference. These polymers (especially the higher-molecular-weight grades) are said to give evidence of unusual thickening efficiency.

Viscosities are dependent on shear rate, and fall off as shear rate is increased. This shear dependence is a reversible phenomenon except when high shearing forces actually break apart the very longest of the molecules. It is more pronounced with the higher - molecular - weight resins. Solution viscosities are relatively unaffected by short-term changes in pH or by presence of dissolved salts. Viscosities decrease as the temperature is raised, but the degree of change is less than that for most other water-soluble resins.

"Polyox" resins in water solutions have no tendency toward biological decomposition. Hence no preservatives need be added to solutions as is often required with other water-soluble resins. In water solutions they show almost no surface activity. Solutions of higher viscosity grades exhibit a definite "stringiness" or "pituitousness." "Polyox" resins are soluble in such organic solvents as acetonitrile, methylene chloride, and ethylene dichloride.

The new polymers are highly crystalline, ranging in molecular weight from a hundred thousand to several million — and they are truly thermoplastic in nature.

Higher molecular weight grades of "Polyox" resins have exceptional thickening power in solution at room temperature. A one per cent water solution of a "Polyox" resin at 25°C., for example, has a viscosity of 460 poises as compared with 20 poises for the highest-molecular-weight grade

(*Continued on Page* 85)

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Pressure Packaging Overseas

Dr. Tom C. Clark of Druk-Pak Ltd., Zurich, reports briefly on the Frankfurt meeting to discuss a European aerosol association, and talks about aerosol problems in Denmark.

FOR some time there has been discussion about a European Aerosol Association — a counterpart to the CSMA — which would give Europe's growing industry an objective organization for the establishment of technical standards and the furtherance of its interests. We mentioned this possibility in our January article and have long advocated the idea. There was much genuine interest and the need was felt. Lacking was a final organizing push and this has now been supplied. In fact, the time couldn't be more appropriate. With the European Common Market a distinct future possibility, with the industry expanding, and with government control bodies commencing to take an interest in the transport and labelling of pressure packages, it is *essential* that the European industry have some central organization to represent it effectively and look after its interests.

Accordingly, a preliminary meeting was held in Frankfort, Germany, on Saturday, Oct. 26, with over 60 in attendance from six European countries (Germany, Belgium, France, Holland, Denmark and Switzerland). All component parts suppliers were represented: propellants, containers (both metal and glass), valves, chemicals, perfumes and essences, equipment manufacturers and loaders of all different product types. The meeting had been arranged by representatives of the industry, together with Hans Hentzel, editor of the Germany publication *Parfumerie und Kosmetik*, who has done much to assist the industry.

After some sound and constructive opening remarks by Mr. Hentzel, Mr. F. Hans of the Pegasus Co. in Frankfort gave a brief account of early European developments and pointed out some of the problems which the industry presently faces and can well expect to encounter in the future. The meeting was then thrown open for a general discussion, with Mr. Hentzel presiding.

A canvass of the countries represented revealed that only Germany has any government regulations applying specifically to the aerosol package and these are simply the general ones (as in the U. S.) which apply to the transport of all pressurized gases. However, it was revealed that other European countries are now actively studying the new package and some have even gone so far as to draft tentative regulations covering their loading, transport, labels, etc. Representing the industry with some form of uniform code for the whole European market was recognized as a highly desirable function of a European Aerosol Association.

THERE was considerable difference of opinion about the employment of the term "aerosol" and the adviability of an advertising campaign to educate the buying public into its use for pressure packaged products. In French, German, Italian, English, or any other language, the problem is the same. The buyer in the store asks for a "bomb," "the push-button can," "automatic shaving lather," "the new pressure package," etc. He does not ask for an "aerosol," and should he do so, the clerk would probably not know what he was talking about.

However, it was constructively suggested that identification might be accomplished by labeling the different products, in addition to the brand name, with the phrase: "aerosol insecticide," "aerosol hair fixative," "aerosol air freshner," etc., and this matter is to have further study.

The meeting was somewhat enlivened by representatives of a new Swiss organization (founders: one American, one Danziger, and one German) carrying the title: "International Aerosol Association—IAA," which had announced its existence some ten days before the Frankfort meeting and claims priority among the new crop of European aerosol associations just beginning to be formed.

Representatives of the International Aerosol Association explained that their "neutral" organization is intended merely as an overall international central clearing house organization which would accept memberships

(*Continued on Page* 113)

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WE PIONEERED...
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Polysols®

the revolutionary approach to pressure packaging that now opens up a new and tremendous market to

ANY PRODUCT THAT FLOWS

Polysols are now in production

Connecticut Chemical opens the door to thousands of manufacturers who are seeking new markets, broader consumer acceptance, and long-range profits. In POLYSOLS lie the pressure packaging future for literally unlimited products *already on the market*—and many more *still to be born.*

POLYSOLS, developed by Connecticut Chemical, are a revolutionary new concept in pressurized packaging which has made it possible to package in "pushbutton" form almost any cosmetic, drug, pharmaceutical or household product *that flows,* or *can be sprayed.*

In the drug field alone the application of POLYSOLS for gargles, depilatories, toothpastes, liniments, lotions, ointments and body rubs are virtually limitless.

Aerosol field was limited in scope

Until now, aerosols have been confined in their applications because refrigerant gases were incompatible with many products, many chemicals, many containers, or unacceptable for internal use.

Examples: refrigerant propellants couldn't be used for baby oils that must be expelled at room temperature... products to be used internally as mouth washes and nasal sprays... highly viscous materials such as toothpastes... or products with water base emulsions, such as furniture polish.

Packaging revolution pioneered by Polysols

The POLYSOL concept, packaged in highly diversified ways, was introduced to industry during a press conference at the Waldorf-Astoria in May 1956. Since then even greater strides have been made in research and development.

Many gases not heretofore used in pressurized packaging including nitrogen, CO_2, nitrous oxide and other rare gases — *were adapted depending upon the individual requirements of each particular product.*

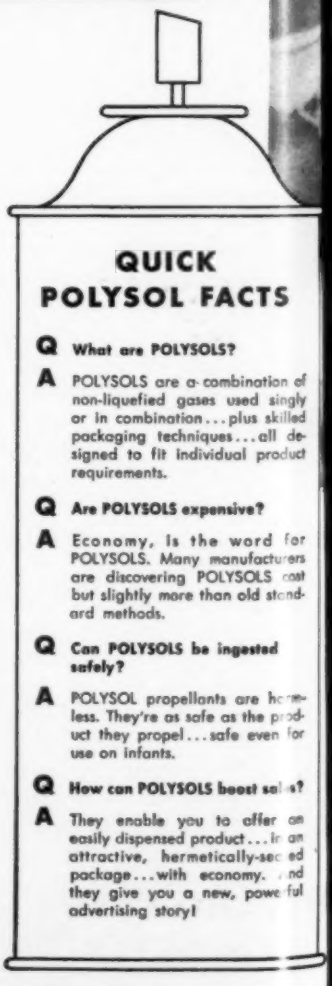
Just as important, our laboratories worked with the assistance of valve and container companies in developing further refinements in the design of valves, siphon tubes, internal coatings and containers. This cumulative technical pioneering was responsible for many great POLYSOL achievements.

Improve your product—or create new ones!

Consumers have long recognized the enormous advantages of pressurized products. Their acceptance has been truly fantastic. And now, Connecticut Chemical makes possible the production of countless, *new* products in pushbutton form... with tremendous sales volume opportunities... costing but slightly more than present packaging methods.

Our research development laboratories are in a position to offer you sound technical advice. We can show you how POLYSOLS can be applied to your product or help you conceive a new one. Above all, we can help you determine if your product should be in POLYSOL or *aerosol* form.

CALL OR WIRE TODAY— and let us show you how POLYSOLS may be the solution to your problems. Even if your product was checked in the past, *and found to be too costly or impractical,* we can prove to you that POLYSOLS can be your economical answer.



QUICK POLYSOL FACTS

Q What are POLYSOLS?

A POLYSOLS are a combination of non-liquefied gases used singly or in combination... plus skilled packaging techniques... all designed to fit individual product requirements.

Q Are POLYSOLS expensive?

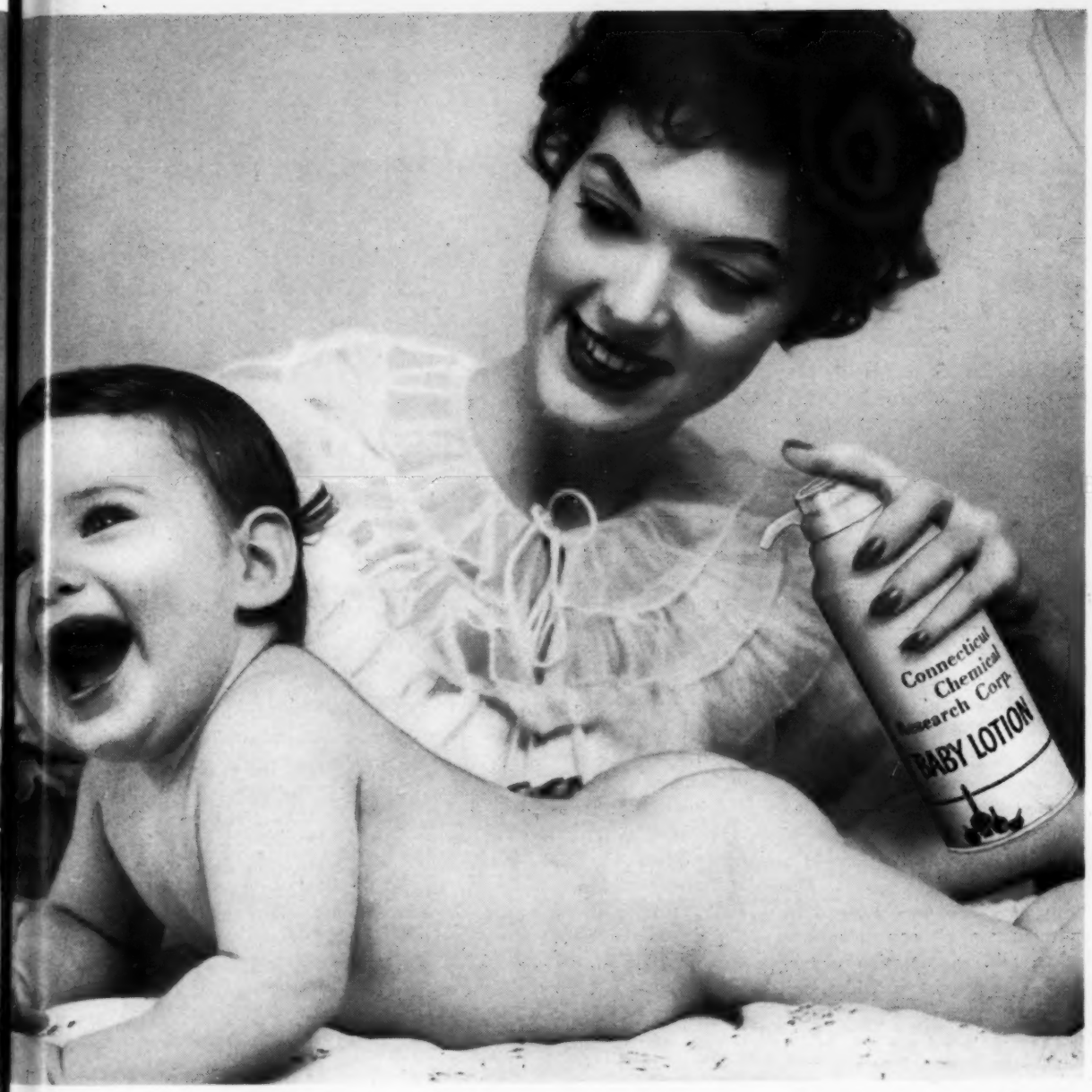
A Economy, is the word for POLYSOLS. Many manufacturers are discovering POLYSOLS cost but slightly more than old standard methods.

Q Can POLYSOLS be ingested safely?

A POLYSOL propellants are harmless. They're as safe as the product they propel... safe even for use on infants.

Q How can POLYSOLS boost sales?

A They enable you to offer an easily dispensed product... in an attractive, hermetically-sealed package... with economy. And they give you a new, powerful advertising story!



lysols open the door to almost any product—for example:

Cosmetics
- ansing creams
- cial creams
- amin creams
- ringent creams
- mpoos
- r creams
- ve sets, lotions
- ndruff remedies
- nd creams
- logne creams
- odorant creams
- n tan aids
- r tints
- r conditioners
- r dyes
- uid makeups

Drug Items
- Toothpastes
- Antiseptics
- Body rubs
- Hemorrhoid creams
- Electric shave lotions
- Hair grooms
- Hair lotions
- Baby astringents
- Mouth washes
- Liniments
- Salves
- Burn creams, lotions
- After shave lotions
- Diaper rash creams
- Baby oils
- Nasal sprays

Household & Other
- Disinfectants
- Spot removers
- Metal polishes
- Shoe polishes
- Shoe cleaners
- Car waxes
- Furniture polishes
- Furniture waxes
- Detergents
- Auto cleaners
- White wall tire cleaners

Food—Already 30 food items have been successfully packaged to date—and Connecticut Chemical has made technical assistance available to interested food manufacturers and purveyors.

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It's here
A FURNITURE POLISH!

It's here
A DEPILATORY!

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A WAVE SET!

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ENGLAND: Midland Aerosols Limited, Wolverhampton

Homemaker's Products Uncovers New Propellant Data in Research To Perfect New Pharmaceutical

HOMEMAKER'S Products' new aerosol pharmaceutical development, the "Nebu-Halent" (*Aerosol Age*, November) was introduced to the retail pharmaceutical market last month with a whole series of full-page two-color advertisements. The cartridge-type aerosol nebulizer, which apparently completely eliminates the chilling effects commonly associated with conventional fluorinated hydrocarbon propellants, was unveiled to the medical profession in a special display at the meetings of the American Medical Association and the American College of Chest Physicians in Philadelphia on Dec. 2.

Additional information about the development was released to *Aerosol Age* by Homemaker's Products in a special interview last month. The company reported that the aerosol nebulizer (in a kit containing one complete unit, an extension mouthpiece, a spare pressure cartridge, one replacement capillary, and a "pliofilm" pouch) will retail for $7.50. This is said to compare favorably with the retail price of $9 for the conventional hand-squeeze apparatus hitherto widely used by asthmatics.

Developers of the new aerosol nebulizer point out that its advantages over the hand squeeze apparatus go much further than the immediate one of price. The squeeze bulb device requires about ten pounds of hand pressure per square inch — an excessive amount to the asthmatic sufferer in a moment of crisis. Also, researchers have estimated that the asthmatic will be required to employ four "squeezes" of the bulb *per inhalation*. This is due to a number of circumstances, chief of which is the difficulty in coordination of the inhalation with the pressure on the hand bulb.

The obvious solution to all these problems was an aerosol device with push-button triggering mechanism. However, the conventional aerosol proved itself to be unsuited for inhalation therapy, particularly in the field of asthmatic treatment. The distribution and size of the sprayed particles was too crude to meet the exacting specifications of the medical profession, and these factors, coupled with the chilling effect of conventional propellants, have discouraged any widespread use of the aerosol in this type of therapy.

According to the research staff at Homemaker's, the metered valve hasn't offered any final conclusion to this problem either; for much the same reason as did the squeeze bulb; coordination is difficult for a person having an asthmatic seizure. The metered dose is often delivered at a time when the person is not inhaling, hence resulting in a waste of the medicament. The "Nebu-Halent" solves this problem by allowing a steady stream of medicament, (with a particle mass median of 1.9 microns) to enter the respiratory system.

This factor of particle size (coupled with the ability of the device to deliver the medicament into the proper place in the respiratory system) is all important in therapy of the respiratory diseases. It is a medical axiom that "the smaller the particle size, the lower the percent of retention in the lung."

Homemaker's already reports an apparent widespread acceptance of the "Nebu-Halent" even before the company's salesmen were able to demonstrate the device to the drug stores. They report that 19 out of 20 of the stores visited are turning in orders — and this was before the product was in full production and physically demonstrated in the stores.

Probably of as much importance to the aerosol industry as the actual development itself has been the extensive toxicological studies conducted by Homemaker's Products on the fluorinated hydrocarbon propellants.

These studies have included both animal and clinical studies conducted by Norman Molomut, Ph.D., at the Waldemar Research Foundation, Port Washington, N. Y., Dr. Gustav J. Beck, Presbyterian Medical Center, Columbia University, New York, and Dr. Sol Katz, Division of Pulmonary Diseases of the District of Columbia General Hospital, Georgetown University, Washington. Specially bred pathogen and respiratory-disease free laboratory animals were tested for gross pathological and sectional pathological effects of the propellant (dichloro-difluoromethane). A complete

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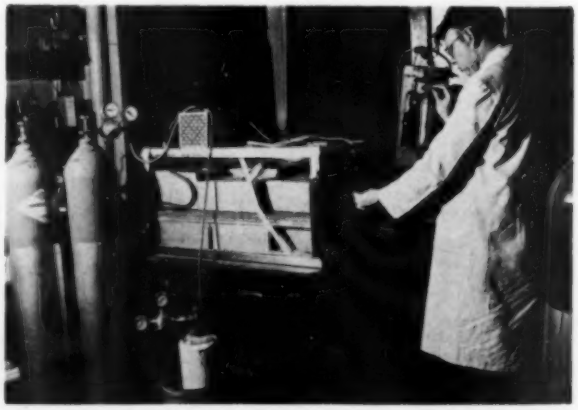

Much of Homemaker's fundamental toxicological studies were accomplished in a "closed" breathing device (at right). In such a device the researcher is able to fully control the propellant-air mixture breathed by the test animals.

CSMA Announces Award Winners

Rexall Drug Company's "Stag" aerosol shave cream and Helena Rubinstein's "Five O'Clock" perfume mist, both winners in their individual product categories, share top honors as "best in show" in the CSMA's Aerosol Package Design Contest. Other winners are (left to right) Martin Senour's "Kolor Brite," Rexall Drug's "Alco-Mist," The Gillette Company's "Adorn," Adrienne Distributor's "Adrienne Space Fragrance," S. C. Johnson's "Raid" mothproofer, La-Bora's "Dogette" dog freshener, Mayfield Laboratories' "Myrtle Mayfield" body lotion, and Chemical and Material Corporation's "Vego H-18" electric motor and equipment cleaner.

FOR the first time since the Annual Packaging Awards for aerosol products were initiated in 1952, products of two marketers tied for first-place top honors in excellence of package design, it was announced in December by the Aerosol Division, Chemical Specialties Manufacturers Association.

Due to a deadlocked panel of six highly qualified judges, who served voluntarily, top honors went jointly to: Helena Rubinstein, Inc., New York, for "Five O'Clock" perfume mist, and Rexall Drug Co., Los Angeles, for "Stag" shave cream.

It was the firm opinion of the judges that the perfume mist represented handsome package design for an aerosol product carried on the person, while the shave cream exemplified excellent design of an aerosol package item with outstanding "shelf appeal." Consequently, the panel of judges could not make a choice of one over the other strictly on the criterion of good package design.

The panel of judges, who met on Nov. 13 in New York to make the annual award selections, comprised:

John Gerald, President, Hammacher Schlemmer, New York;

Maurice E. Bale, president, Harold F. Ritchie, Inc., Clifton, N. J.;

Mrs. Edyth Ramsay, home equipment editor, *American Home* magazine, New York;

Mrs. Paul Green, housewife, Kings Point, Long Island, N.Y.;

Leigh Allen, industrial designer, New York;

The contest judges were (seated) Mrs. Paul Green, Kings Point, L. I., N. Y., housewife and Mrs. Edyth Ramsay, "*American Home*" magazine; and (standing, left to right) Arthur R. Botham and Leigh Allen, industrial designers; Maurice E. Bale, president, Harold F. Ritchie, Inc., and John Gerald, president, Hammacher Schlemmer, New York.

Arthur R. Botham, industrial designer, New York.

Before being selected together as "best in show" Helena Rubinstein's "Five O'Clock" perfume mist placed first in its product category—'Cosmetics, Glass and Plastic Aerosols', and Rexall's "Stag" shave cream placed first in its product category —'Shave Products.'

First place packaging winners in the other eight aerosol product categories were:

S. C. Johnson and Son, Inc.— "Raid" mothproofer — 'Insecticides, Repellents and Mothproofers.'

Adrienne Distributors—"Adrienne Space Fragrance" — 'Room Deodorants.'

Martin-Senour Co.—"Kolor Brite" spray enamel—'Paints, Enamels, Other Protective Coatings and Paint Remover.'

LaBora, Inc., Distributor—"Dogette" dog freshener—'Other Household Products.'

The Gillette Co.—"Adorn" hair spray by Toni—'Hair Preparations.'

Mayfield Laboratories, Ltd.— "Myrtle Mayfield" body lotion — 'Other Personal Products.'

Rexall Drug Co. — "Alco-Mist" body spray — 'Medicinal and Pharmaceutical Products.'

Chemicals and Materials Corp.— "Vego H-18" electric motor and equipment cleaner—'Industrial Products.'

Awards were presented officially to the winners on Monday, December 9th, at the 44th Annual CSMA Meeting, Hollywood Beach, Florida.

•

Gardner to Head ATI Sales

Fred R. Gardner has been appointed sales manager of Aerosol Techniques, Inc., Bridgeport, aerosol custom filler.

A well-known sales executive in the chemical field, he came to Aerosol Techniques from Stein Hall & Co. With headquarters at ATI's New York offices, he will direct the company's expanded sales program among the cosmetic, pharmaceutical and food marketers. He is a graduate of Manhattan College, New York University and Columbia University, and resides in Valhalla, N. Y.

Rau Wins Crown Can Spra-tainer Contest

Jack Carney, division manager of Crown's Can Division, presents Edward G. Thau, of the Nestle-LeMur Co., with a gold Spra-tainer lighter and portable television set in recognition of his winning the Crown Billionth Spra-tainer Contest. Harvey C. Tull, manager of the division's aerosol sales, (center) looks on.

Aerosols on TV Program

The new world of pressure-packed products was highlighted on a top-rated network television news show Nov. 29, as part of American Can Company's program of bringing new canning and packaging developments to the attention of the nation's consumers. Sponsored by Canco, CBS's "Douglas Edwards and the News" described the widening range of products offered in aerosol packages. The show demonstrated such products as cheese spreads and catsup, which will soon be packed under pressure for convenience and easy using.

Pressurized chocolate syrup, the first such food product to be marketed commercially in an aerosol package was also shown. New developments in pressure packaging make it possible to dispense the chocolate sauce in a steady stream, without splatter or sputter, the program pointed out.

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Guenther Returns from Africa

Dr. Ernest Guenther, vice-president and technical director of Fritzsche Brothers, Inc., New York, returned to the firm's office last month following completion of his six-month tour of essential oil sources in Eastern and Central Africa. His trip included Kenya, South Africa, Madagascar, the Comoros, and Reunion Island, and results of his findings have been reported in the "Guenther Reports", a series of trade bulletins. Fritzsche Brothers has announced that it plans to continue distribution of the reports, datelined as of the place and time each was written, until the full account of the findings is completed.

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GAF Names L. R. Waddey

Lewis R. Waddey has been named branch manager of the Chattanooga, Tenn., sales office of General Dyestuff Co., a sales division of General Aniline & Film Corp., New York. He succeeds H. Alison Webb who was recently appointed assistant sales manager of General Dyestuff.

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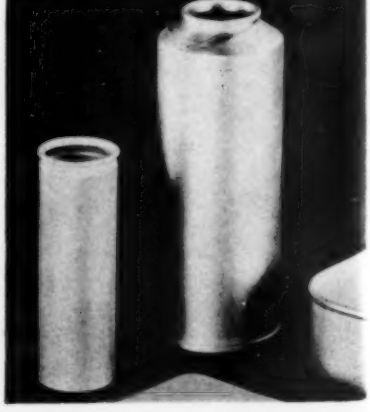
New Aluminum Can Styles

The first photograph of its new representative can styles in aluminum was released late last month by Continental Can Co., New York. The photograph, which included a number of other types of cans, shows a purse-size and a standard size aerosol container.



Consultant's Corner

by Robert A. Foresman, Jr.

Aerosols in Europe-Opportunity for Leadership

ON October 26 I attended the aerosol meeting in Frankfurt A.m. Germany, called by Director Hans Hentzel of the magazine *Parfumerie & Kosmetik*. In all there were 46 individuals representing West Germany, Denmark, France, Holland, Switzerland and the United States.

The group attending the Frankfurt meeting did not include representatives from all countries and all segments of the industry, and there may be some who feel that the formation of an association under the aegis of a magazine or specialized segment of the industry is not in the best interest of the industry at large. Regardless of this, the fact that a start was made on an all nation basis is constructive. An effort was made to overcome the objections by appointment of a committee from the following industries: tin cans, aluminum cans, glass bottles, valves, propellant gas, insecticides, cosmetics, aromatic chemicals & essential oils, contract fillers, and filling equipment.

The purpose of the committee is to arrange a future meeting and outline a program for development of a continuing organization.

While the meeting took a number of constructive steps towards the formation of some sort of European aerosol association, there remained a number of unanswered questions, when the meeting had been adjourned.

The biggest single question arose over the formation (just prior to the Frankfurt meeting) of the International Aerosol Association in Switzerland. Although the I.A.A. has only the few members to show for its entire membership, the fact of its nominal existence caused considerable discussion regarding its relationship to the results of the meeting called by Herr Hentzel.

At intermission time (between sessions of the meeting) I discussed the objectives of the I.A.A. with Mr. Mayer, its president, and expressed to him my thought that conceptually the I.A.A. should provide a clearing house for arrangements between essentially continental (or at least area) associations. To my surprise (and I must say, moderate consternation) Mr. Mayer remarked that since the nations of Europe, especially France and Germany, could not be expected to work together, the only way aerosol association activities could be carried on in Europe would be for each nation to form their own local association, which would then become a member of I.A.A. Later, in a speech to the meeting, Mr. Mayer indicated that the I.A.A. would serve all the functions of an overall association except that of advising national legislative agencies on regulations applying to aerosol packaging and distribution, which would be handled by the national organizations. He spoke of the I.A.A. as the "umbrella" over the local associations, which to me implied a concept of benevolent paternalism over a group of small ineffective associations that leaves little of dignity or autonomy except at the top.

This attitude seems tragic to me in the light of the efforts being made to unify the economic life of Europe and the psychological progress that has been made toward that end to date.

Mr. Mayer, living in Switzerland and associated with the international aerosol business through his presidency of Precision Valve Co. International, may be and probably *is* in a position to know more of the everyday facts of life in Europe than I do. However, I must say, that I have never encountered any such feeling of antagonism within the European aerosol industry as he expressed to me. As a matter of fact the temper of European business in general seems to me to be one of wholehearted and interested cooperation between all the Western nations, with a very realistic attitude that occasional differences will develop and must be expected; but that in the long run Europe must work toward business and economic unity. I do not think I am exaggerating when I say that throughout all of Western Europe where I have traveled there is real enthusiasm for the so-called "Common Market," which will make possible the free flow of goods and services all over Europe. As for the specific charge of lack of cooperation between France and Germany—the Schumann Plan, whatever its shortcomings, is working and provides dramatic proof that between the people of the two nations a spirit of cooperation and mutual respect does exist.

Possibly I have no proper right to give an opinion on these matters, but my very real love for all of Europe and for the many close friends I have made in the aerosol field there prompts me to at least express my thoughts. I do not hold with those who automatically begin each comment with "in the States we do it, etc., etc." Europe's problems are *not* the same as ours in the U. S. and must be approached in the light of the differences. However, the European aerosol

(*Continued on Page* 103)

THE VALVE'S THE THING

✳ Whatever type of product you are now packaging or planning to package in aerosol containers, top it off with a Precision Valve.

Our wide experience and modern manufacturing facilities with the best production machinery, offer the most complete line of valves for the widest range of product formulations.

The aerosol packager is aware that the pressurized container is a new horizon, a new dimension in packaging and merchandising. The latest count approaches nearly 1000 different uses for aerosols, paints, cleaners, pharmaceuticals, foods, cosmetics, etc.

We, at Precision, are justifiably proud of the record our valves have made, made in the hands of millions of users.

Precision, the world's largest aerosol valve manufacturer, is at your service.

liquid or semi-liquid product -Precision's new valve and spout

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Flavorings

Ethical Pharmaceuticals

Antibiotics

Liquid Makeups

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Eye Drops

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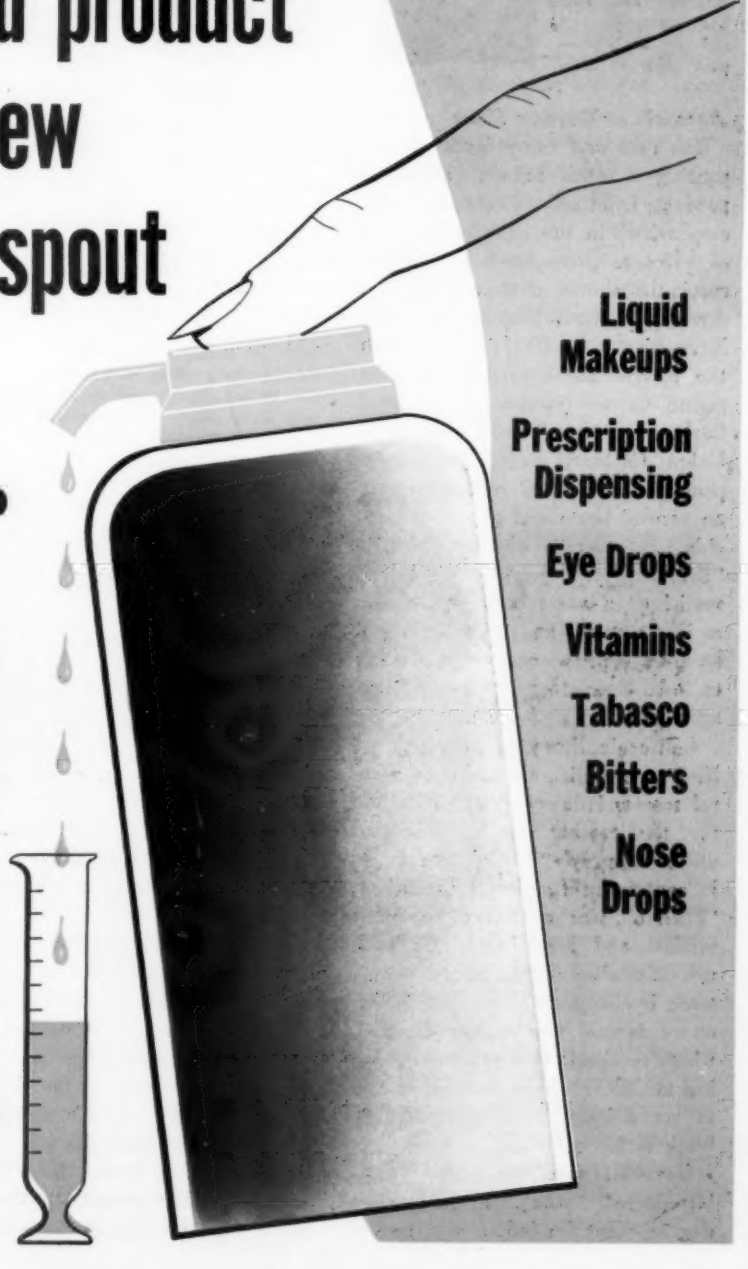
Tabasco

Bitters

Nose Drops



DROPS MEASURED TO SIZE

A DROP DISPENSER that operates at the touch of a finger to give a predetermined drop size, exact enough to dispense drugs or vitamins. An ideal dispenser of volatile products, many medicinals or oxidizable vitamins and extracts. The inert propellant does not effect the contents either physically or chemically. Thanks to Precision, you can now take advantage of this most modern and effective packaging container. Precision's engineers will be most happy to discuss your product and your product problems . . . a letter will bring you complete details. Why not write today!

700 Nepperhan Avenue, Yonkers, N.Y.

NEWS of Pressure Packaging

Baer Joins Precision Valve

Leonard S. Baer, former Eastern Sales manager for G. Barr & Co., Chicago, last month was appointed to the sales staff Precision Valve Corp., Yonkers, N. Y. He had been with G. Barr since August 1956, and had worked in the industry in Bridgeport prior to that.

•

Aerosols at Garden Show

The ease and convenience of dispensing a much broader range of products from aerosol containers was emphasized in the growing number of pressure packaged home garden specialties shown at the annual garden supply show, held on Chicago's Navy Pier, Nov. 10-12. Featured in the newest home garden line just placed on the market by National Carbon Co., New York, a division of Union Carbide, were two aerosol packages, an aerosol rose spray and an aerosol home and garden insecticide. Both are packed under the "Eveready" trademark. National advertising on radio and TV, as well as in magazines and newspapers will be given the new products, according to D. K. Harrison, general sales manager.

California Spray Chemical Corp., Richmond, Calif., has added an aerosol rose and flower spray to its line for the coming season, marketed under Calspray's "Ortho" trademark. It contains a fungicidal ingredient, "Phaltan", for control of powdery mildew and black spot. DuPont's newest product for the garden supply trade is also pressure packed,—a 12-ounce aerosol tree wound dressing, which received its first public showing at Chicago. The material is said to set quickly, forming a smooth, black seal.

Boyle-Midway, Inc., New York, introducted "Ritz", a pressurized dog repellent for indoor use, packed in a five-ounce container, and another new aerosol product, "Instant Leaf Shine", for touching up broad leaved plants.

•

Kirk to Head British Firm

Brian A. Kirk has been appointed managing director of the newly-formed British Aerosol Corp. Ltd., Quadrex House, Park Lane, London, W. I. He was previously associated with Cooper, McDougall and Robertson Ltd., Berkhampsted, who pioneered the introduction of pressure packaging to the United Kingdom through their subsidiary organization, Pressure Aerosols Filling Co. Ltd. (PAFCO). His main activities at the British Aerosol Corp. will be in the exploitation of the license which this firm holds to produce Risdon valves in Great Britain. As a result of his recent trip to the United States and his conversations with many people associated with pressure packaging, Mr. Kirk is reported to believe that eventual expansion of the British Aerosol's activities into other facets of the aerosol industry may soon be possible.

TGA Extends Standards Board

The Toilet Goods Association, New York, last month extended the services of its Board of Standards to "any member of the industry who desires to take advantage of them." The board is a review body originally set up to help only TGA members with their labeling and advertising problems; but in recognition of recent misleading advertising claims against certain members of the toilet goods industry, the TGA has extended the service to non-association members.

The board, which has been in existence nearly 20 years, boasts that "No piece of copy, either labeling or advertising, which has been approved by the TGA board of Standards, has ever been made the subject of a case by either the Food & Drug Administration or the Federal Trade Commission." The manufacturer must submit in duplicate, the proposed copy in advance of publication.

Supreme Court Again Upholds Rise Patent

ALL 21 claims of the "Rise" aerated shaving cream patent (specifically, the Spitzer patent, held by Carter Products) have been upheld again by the U. S. Supreme Court. The high court denied an appeal on a decision from the U. S. Court of Appeals, Richmond, Va., rejecting Colgate-Palmolive's contention that the patent's scope was too wide.

In its latest petition, Colgate claimed that the U. S. Court of Appeals ruling gave Carter Products a monopoly over part of the prior art of packaging pressurized soap solutions. At the time of the decision, Colgate termed it a "direct and immediate" threat to the $30 million aerosol shaving cream industry. In its most recent appeal, Colgate also contended that Carter had devised "an oppressive licensing program" for use of its patent. In 1956, Carter realized $2.3 million in income from patents, chief of which is the Spitzer patent, against only $90,000 in 1955, (the year of the Richmond decision).

Colgate went to the Supreme Court last year on the same case, that time basing its petition on a March 1956 decision of the Richmond court which affirmed a decision of the U. S. District Court in Baltimore upholding all 21 claims of the patent.

At that time H. H. Hoyt, president of Carter Products, declared that all aerosol shave creams then on the market fall within the scope of the Carter patent. The patent has been the most controversial and hence the best known patent in the history of the aerosol industry.

Brown Heads Colgate Research

Dr. John R. Brown, Jr., has been appointed a director and vice-president in charge of research and development of the Colgate - Palmolive Co., New York. He had been vice-president for research and development of the Spencer Chemical Co., Kansas City.

Dr. Brown began his career in 1938 with the Esso Laboratories Chemical Division of Standard Oil Development Co., where he became assistant director of the Division. In 1946 he joined the Pro-phylac-tic Brush Co. and in 1949 was transferred to the Lambert Pharmacal Co., where he became vice-president and director of research. He joined Spencer in 1953.

•

Rutgers Perfumery Course

"Perfumery and Essential Oils" a new evening course, is being conducted Wednesday evenings from 7:00 to 9:30 by Rutgers University, 40 Rector Street, Newark. At present the class, which includes graduate students, assistant chemists, and assistant perfumers, is concerned with the chemistry of essential oils and terpenes and their reactions, properties, and synthesis.

When the fundamental part of the subject is completed, the class will advance into the compounding of perfumes, under the direction of Steffan Arctander, noted European perfumer who is now with the Colgate-Palmolive Co. in Jersey City. Dr. Donald B. Denney of the University's School of Chemistry is the instructor.

•

Publicity Report Dec. 11

At the Wednesday morning meeting of the CSMA's Aerosol Division, on Dec. 11 in Hollywood Beach, Fla., Frederick G. Lodes, of Lodes Aerosol Consultants, and chairman of the Publicity Committee, will present a brief report on accomplishments and results of the industry's consumer publicity program during its first eight months. The presentation will be highlighted by slides.

James Bampton of Krylon, Inc., and Norman Odell, of G. M. Basford Co., will report on plans for the remaining few months of the first year's publicity program, status of the 1957 budget, and preliminary planning and hopes for the second year's program.

The new aerosol television movie "The Magic Button" will be shown for the first time following the publicity program presentation. As soon as it has been premiered for the aerosol industry it will go into distribution to TV stations across the country.

•

Thau Wins Crown Contest

Crown Cork & Seal Company's Can Division, Philadelphia, late last month announced that Edward G. Thau, of the Nestle LeMur Co., New York, had won the "Crown Billionth Spra-Tainer Contest." Mr. Thau's guess of Nov. 8 at 3:40 p.m., was the closest of all the entries for the exact time the billionth Crown "Spra-Tainer" was manufactured.

Announcement of the contest result was made by Harvey C. Tull, manager of Crown's Aerosol Products Department.

•

Babbitt Names Woolley

John Woolley, former assistant sales director, has been appointed vice-president of marketing by B. T. Babbitt, Inc., New York.

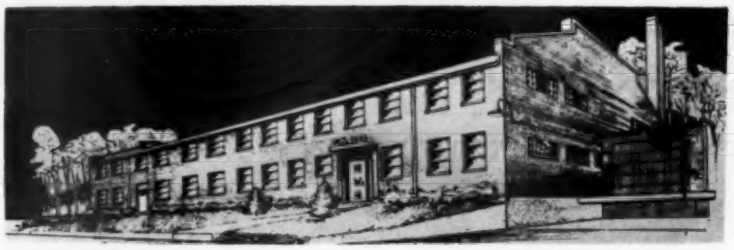
Foster D. Snell Expands

With the purchase of a ten-story building, Foster D. Snell, Inc., New York, organization of consulting chemists and chemical engineers, has almost doubled its present capacity for conducting research and development work for the chemical and allied industries. The building, a "mirror image" of the firm's present location at 29 West 15th Street, is located at 28 West 15th Street. This is in addition to laboratory buildings owned in Baltimore, Md. and Bainbridge, N. Y.

Plans for the new building coincide with a major expansion program initiated by Foster D. Snell, Inc. during recent months. Dr. Foster D. Snell, in announcing the latest addition, stated that the new space is being provided to meet the expanding requirements for independent research and development by American industry.

Additional facilities will include a complete oil and lubricant testing laboratory, a new cosmetics laboratory, a fully equipped paint and varnish laboratory, a completely-staffed marketing and economic research department, and expansion of facilities for toxicity studies.

Gard Moves to New Northfield Plant



Gard Industries, Inc., Northfield, Ill., custom filler, recently moved to a large new modern plant at 1739 Harding Road, Northfield. According to Howard Klehm, president, the new plant is the opening move in an expansion program to keep pace with the expanding aerosol field.

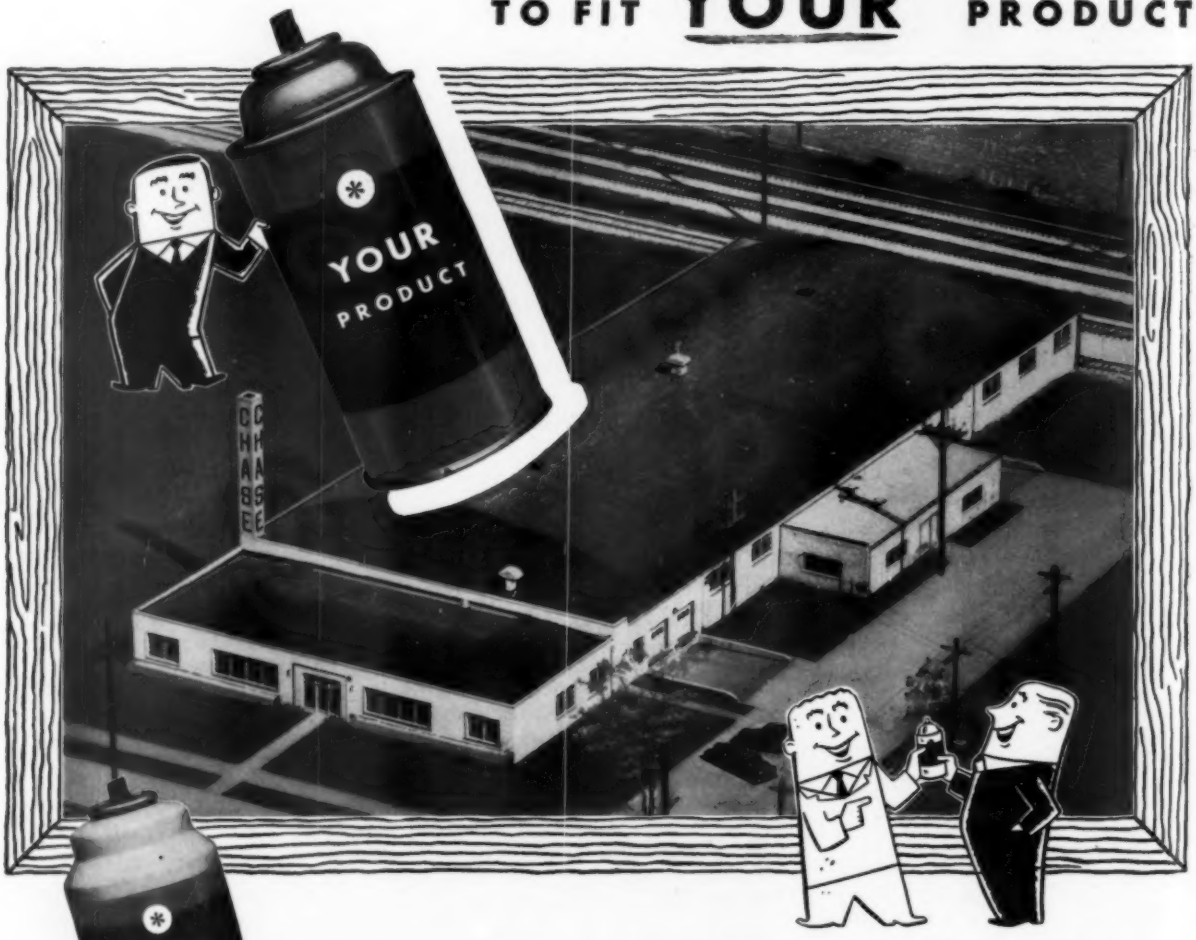
The new plant, believed to be the only air-conditioned operation in the industry, has a special dust-filtered humidity-controlled department for its aerosol filling. Special production lines will be maintained separately for Gard's private label filling of paints, insecticides, and other household products.

The plant has 1200 square feet of laboratory space, which has been fully equipped for product analysis, research, and development. A separate control laboratory, also fully equipped, will be available for customers' chemists and quality control personnel.

The facilities include 10,000 square feet of space for the storage of solvents and chemicals, 5000 square feet for storage of finished products, plus greatly expanded space for storage of cans, boxes, and miscellaneous shipping and packing equipment.

AEROSOL *Packaging*...

TO FIT YOUR* PRODUCT



PRODUCTION VERSATILITY—Our facilities will handle oil and water base, liquid and foam products, of all types, *in small or large quantities.* No minimum run required and no maximum limit! *Rigid quality control* is maintained on all production regardless of the size of your run. All types of cans and valves are available to you from stocks kept on hand. Complete laboratory service lending itself to *dependable production* is a must for your aerosol or pressurized product needs and is also part of our complete service rendered by personnel trained in aerosol research. For information, consultation, or estimates, write or phone one of the countries first aerosol fillers—CHASE PRODUCTS COMPANY •

INCREASED PLANT FACILITIES—Our new 30,000 sq. ft. plant is centrally located for ideal distribution, with both rail and truck facilities. We offer warehousing, drop shipping in bulk lots, direct pick up and routing by major national truck lines. Outer Belt Line rail service connecting every railroad in the Chicago area. All these make for faster, more efficient, more economical receiving, handling, and delivery of your merchandise.

CHASE PRODUCTS COMPANY · MAYWOOD, ILLINOIS

Helene Curtis College Course

Helene Curtis Industries, Inc., Chicago cosmetics and aerosol firm, last month announced a program which is believed to be the first such plan advanced by a commercial enterprise to alleviate the problem of overcrowded college classrooms. The company has arranged with Roosevelt University, Chicago, to offer its employees a general college education, with credits acceptable for degrees. The courses will be conducted in classrooms in Helene Curtis' large Chicago plant.

The courses are open to all of the firm's 1800 employees, who are offered the opportunity to either take college credits toward a degree, or merely broaden their education. Tuition, books, and materials are paid for by the company.

•

Beeler in New Crown Post

Crown Cork & Seal Co., Inc., Can Division, Philadelphia, recently announced the appointment of Richard W. Beeler to manager, sales development, of the Can Division. He had been manager of sales development, Crown and Closure Division of Crown in Baltimore, Md.

In his new post Mr. Beeler's primary assignment will be the coverage of the advertising and sales promotion program, and the administration of activities pertaining to the development and dissemination of product information for the sale of existing and new products. He will also serve as the coordinator between sales and the product development section.

•

Aerosols at Fordham Meeting

The fall meeting of the Fordham University Pharmacy Alumni Association, meeting Nov. 6 at the Concourse Plaza Hotel, New York, heard Dr. Francis A. Mina, of Lodes Aerosol Consultants, Inc., speak on "Aerosols in Pharmacy." A feature of the talk was a demonstration of the superiority of an aerosol inhalator over the old "umbrella and sheet tent method employing a teakettle" used some years ago.

After giving a brief historical review of the use of aerosols in pharaceuticals, Dr. Mina outlined some of the present uses of aerosol pharmaceuticals. He concluded with a discussion of the vast potential of aerosol pharmaceuticals, predicting that sales of pharmaceutical aerosols will be increased by seven to ten fold in the next few years.

Titan Makes First Shipment of Aerosols

Everett Cole, president of Titan Chemical Industries, Inc., new custom and private label filler in Colorado Springs, Colo., is congratulated by a representative of Merchants Motor Freight Co. on the first truckload shipment of aerosol products from Titan's plant. The shipment, containing "Titan Shave Lather" is the first shipment to the Rocky Mountain, Great Plains, and Midwest states. Titan's aerosol line also includes a hair spray, a hand cream, "Cling-Free" lingerie spray, and six air fresheners.

In the photo are (clockwise): J. D. Park, R. L. English, M. M. Reynolds, P. L. Barrick, Consuelo Kuhn, and R. J. Seffl, all of Titan. In the center foreground Everett Cole, Titan president, (left) is being congratulated by Lawrence Anzalone, Merchants representative.

Theimer to Head VAH Research

Dr. Ernst T. Theimer has been appointed director of research by van Ameringen-Haebler, Inc., New York manufacturer of flavor and perfume materials. His new responsibilities include director of research on aromatic products and processes, as well as on new analytical techniques for product quality control. He has been engaged in various research activities with VAH since 1931.

Dr. Theimer has two degrees in chemistry from Cincinnati University and received his Ph.D. at New York University. He has long been active in the Essential Oil Association, and is chairman and founder of its Instrumental Analysis Committee. He is also a member of the American Chemical Society and is a national councilor for that organization, as well as a former vice-chairman of the North Jersey Section.

•

D&A Appoints White

Carroll F. White has been appointed sales manager of the container department of Dewey & Almy Chemical Co., Cambridge, Mass., manufacturer of mounting cup gasketing material and equipment. He served as product manager of can-sealing compounds and assistant sales manager.

In a number of other appointments, Dewey & Almy named William M. Rand, Jr. to be sales manager of the chemical specialties department; Paul Y. Clinton manager of manufacturing of the container division; George C. Sykes manager of machine production and design; and Richard W. Haward as Midwestern sales manager of cans, closures, and industrial compounds.

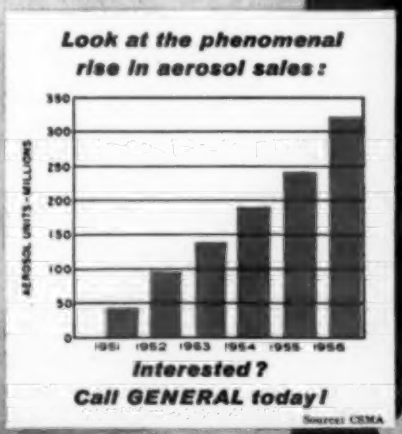
•

Ward Named to USDA Post

Justus C. Ward has been named head of the pesticide regulation section of the USDA, it was announced recently. He succeeds Dr. W. G. Reed, head of the section for the past four years, who resigned in September.

Mr. Ward has been associated with the USDA for 30 years, and had been assistant head of the section. He previously served as assistant director of wildlife research and director of the pharmacological and rodenticide section of the USDA's production and marketing section.

AEROSOL


Look at the phenomenal rise in aerosol sales:
AEROSOL UNITS - MILLIONS
350
300
250
200
150
100
50
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Interested?
Call GENERAL today!
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can start sales shooting straight up *for you!*

Had your eye on aerosols? Then you've seen sales shoot from 40 million units in 1951 to 320 million units in 1956. Aerosol sales have shown a steady increase of about 30% every year since '51!

Here's how *you* can get into this dynamic, high-profit field practically overnight—*without* heavy capital investment!

If your product can be sprayed, brushed on, dusted or daubed, it's a likely candidate for aerosol packaging. General Chemical will help you develop a formulation with the right pressures and compatibilities for your product and container. *No cost or obligation!* And there are many capable contract fillers throughout the country who will put up your product in aerosol form for test marketing, and handle commercial production afterwards. You do not have to invest in plant, special equipment or personnel to get into aerosols!

To arrange for a special presentation, write or call "Genetron" Department, General Chemical Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y.

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The Right Propellant for Every Aerosol Need!

Call on General for:

Free fact-packed technical manuals, market information

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Data on many promising new types of aerosols

Field assistance with propellant storage, handling

GENERAL CHEMICAL DIVISION • Allied Chemical & Dye Corporation

40 Rector Street, N. Y. 6, N. Y.

Rhodia Names Midwest Staff

Rhodia, Inc., New York, last month named Paul Brna district sales manager for its Midwest Division. From its headquarters in Chicago he will be responsible for sales

Paul Brna

Frank Ball

of Rhodia's Aromatic, Flavor, and Alamask Division and for its Pharmaceutical Division.

At the same time the company announced the appointment of Frank Ball as sales representative in the Midwest Division. Mr. Ball, who has had over 13 years experience in the aromatic and chemical field, will contact customers in Metropolitan Chicago, and in the states of Wisconsin, Minnesota, Iowa, Nebraska, Kansas, Missouri, Michigan, and the Dakotas.

•

To Unveil 'Top Secret" Product

Acrolite Products, Inc., West Orange, N. J., last month announced the biggest advertising campaign in the firm's history to introduce a "revolutionary" new artists' spray that was three years in the making. The product (for which a patent has been applied) has been advertised for six months through use of "teaser" ads which call it a "top secret" product. Even Acrolite salesmen and dealers have been kept in the dark as to exactly what the product is.

Production of labels, artwork, display signs, etc. was done at night to further reduce the chances of revealing the product. The secrecy was so successful that Acrolite reports that during a 60 day period, 567 inquiries came in concerning the new product.

Distribution of the product is taking place all over the U. S. at approximately the same time, with dealers in distant points receiving air shipments. Full-page consumer ads, direct mail advertising, and point of sale merchandising have been scheduled for the new product.

•

Boerner to Seymour

Seymour of Sycamore, Inc., Sycamore, Ill., has announced the appointment of Klaus H. Boerner, of East Hampden, Mass., to an executive position as assistant to the president. His principal duties will consist of sales and administrative work with the spray-paint manufacturing firm.

Mr. Boerner is a graduate of Yale University, and, following a tour of army duty, was engaged in commercial color photography in San Francisco.

•

Nestle Opens New Plant

The Nestle-LeMur Co. (Canada) Ltd., Toronto, last month opened a new, modern plant in North Toronto, and has announced the creation of a new import division. A subsidiary of the Nestle-LeMur Co. of New York, the Canadian company recently celebrated its 25th anniversary.

The new plant, covering a total area of 32,000 feet, is almost ten times the size of the firm's original factory in downtown Toronto. The new import division, according to Joseph S. Lindemann, Nestle-LeMur president, was created for the specific purpose of servicing jobbers and dealers with imported products, in addition to those manufactured by the Nestle company.

•

Begin Aluminum Production

Kaiser Aluminum and Chemical Corp. last month began large-scale production of aluminum food cans at its container plant at Wanatah, Ind. The company said it was working on an initial order of 5.5 million cans for Kraft Foods, the cans to be used to package grated cheese.

The Kaiser development is being watched closely by aerosol container manufacturers, since Kaiser is reported to be considering aerosol container production sometime in 1958. American Can, Continental, and Victor Metal Products are also planning aluminum container production next year.

The Kaiser cans are seamless one-piece, and were developed in the Kaiser laboratories in Chicago. The company said that it has already delivered aluminum cans to the Air Force for packaging precision bearings, as well as a substantial quantity to the Air Reduction Co. for packaging stainless steel welding rods.

White Named Bon Ami VP

J. Kenneth White has been appointed a vice-president of The Bon Ami Co., New York, and will be in charge of all advertising, marketing and selling operations for the entire product line. He was formerly a vice-president of Lennen & Newell, Inc., where he was account supervisor on Lehn & Fink products, and assistant account supervisor on the Colgate-Palmolive account. He has also been associated with The Biow Company, Inc., Federal Advertising Agency, Inc., McCann-Erickson, Inc., and Morse International.

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Herzka Speaks at Meeting

A. Herzka, of the research division of the Metal Box Co., Ltd., London, delivered a paper on aerosol propellants and space insecticides at a meeting of the Merseyside branch of the Institute of Packaging. He described an experimental propelling, cooling and filling plant developed in the Metal Box Co. laboratories.

Main features of the apparatus are a stainless steel drum, 18 inches in diameter by 18 inches high, which contains two concentric coils of stainless steel tubing. The coils are connected to the cylinders of propellant by a 3/8-inch flexible hose, and cooling of the propellants during passage through the coils is effected by a freezing mixture of methylated spirits and solid carbon dioxide contained in the drum. The propellant flow is regulated by valves outside the lagging, at the delivery ends of the coils. These are therefore prone to icing up and must have an accurate cut-off even under such severe conditions. Klinger 'sleeve-packed' brass cocks have been found to perform reasonably satisfactorily, Mr. Herzka pointed out.

In a question and answer period after his talk, Mr. Herzka declared that British aerosol manufacturers are working by American regulations because of a lack of British regulations and standards for the aerosol industry there. He said, that in the event of the European Common Market, a "barrier" might have to be imposed on propellant shipment because of the dangers of transport.

...who has the DARK HORSE in the Aerosol Race

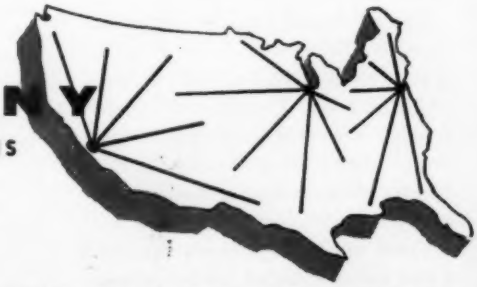
Somewhere in the pharmaceutical, cosmetic, food, chemical or specialty fields today, there are products that are not at all spectacular in their present form or package, but which if packaged as aerosols could become tomorrow's biggest sellers.

You may have such a "dark horse" in your present line.

Today, in G. Barr & Company's laboratories, a continuing, imaginative research program is being carried on to find and perfect these "dark horse" products for tomorrow's markets.

Through constant study of new propellants, new formulations and packaging techniques, we are in a position to offer a unique and comprehensive *Private Label aerosol packaging service.* Through the production of millions upon millions of successfully selling aerosol packages for clients in a wide variety of industries, we have gained experience that has established us as a leader in the pressure packaging field. Yet we market no product of our own.

If you have a product, now being marketed in a standard package, an undeveloped formula, or even the "germ of an idea," we will be pleased to help you ascertain whether it has an aerosol potential.



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Gans Joins Anchor Plastics

The appointment of Leo Gans as executive assistant has been announced by Anchor Plastics Co., Long Island City, N. Y. He brings with him a broad background of development and managerial experience in the plastics-material and extrusion field, having been senior development engineer of the film division of Olin Mathieson Chemical Co. prior to joining Anchor. He will take charge of development and research for Anchor Plastic's Aerosol Dip Tube Division, and also will supervise and coordinate customer relations and extrusion plant operations.

•

Town-City Purchases Studied

Women in towns buy slightly more aerosol hair spray than those in cities, it is revealed by a recent study conducted by the Dell Publishing Co. among 3009 women readers of the company's group magazines. The survey is divided among the women in cities (with a population of over 500,000) and women in towns (a population of 25,000 or less).

It is suggested by *American Druggist*, which reports the findings in its issue for Nov. 4, that small town women lead in the use of hair sprays because they lead more outdoor and hence less sheltered lives than women in the cities. 53.5% of the small town women said they used hair sprays, as opposed to 51.2% of the city women.

In the two other aerosol categories reported, city women used more than town women. In the hair tint category, 12.6% of city women said they used them, and only 9.8% of the town women. For spray deodorants, 13.1% of city women reported they used them, against 12.1% of the town women.

•

Pfizer Names Van Gasse

Chas. Pfizer & Co., Brooklyn, has appointed Dr. Jerome J. Van Gasse as general manager of the Pfizer Laboratories Division. He succeeds Thomas J. Winn, who will continue as a vice-president and director and will serve in an advisory and consulting capacity.

Prior to joining Pfizer, Dr. Van Gasse was director of the Department of Public Health in Jackson, Michigan, and prior to that was an assistant collaborating epidemiologist with the U.S. Public Health Service.

•

Kainik in New D&O Post

Herbert G. Kainik has just been appointed technical director of perfume sales for Dodge & Olcott, Inc., New York, the company announced early last month. A veteran of the industry for more than 25 years, Mr. Kainik has been servicing manufacturers as a consultant on perfuming problems for D&O for the past two years. His new duties will include a broadening of this service to include a larger segment of the perfume and industrial odorant fields. The company points out that requests for his services can be made through local D&O representatives or direct to the company.

•

M. Maubert Is Honored

M. Maurice Maubert, president and general manager of P. Robertet & Cie, Grasse, France, the parent company of P. Robertet, Inc., New York manufacturer of perfume raw materials and essential oils, has been named to the rank of *chevalier* in the French Legion of Honor. The distinction was awarded him for his achievements in the field of essential oils.

Intelligence Service Set Up

Pegasus International Corp., New York foreign trade consultants, last month announced the organization of a new technical and commercial intelligence service. They will supply confidential reports, tailored to the individual client's need, about an industry, an operation, or a product anywhere in the world.

Pegasus declares that such reports can be compiled with great speed at a nominal cost, since the firm's branch offices already exist in the principal industrial centers of the world. These facilities will channel information through the New York Office, where it will be evaluated and relayed to the American client. A similar service will be provided by each of the Pegasus offices overseas. It is felt that these intelligence reports will help American businessmen in their thinking about diversification and broaden the possibilities for overseas expansion.

•

Solvay Names Boehm

The Solvay Process Division of Allied Chemical & Dye Corp., New York, has appointed Frederick P. Boehm as sales manager for the Pittsburgh area. He will supervise the company's sales activities in western Pennsylvania and West Virginia.

St. Louis Retailer Wins Bon Ami Contest

Albert J. Weiss, operator of Weiss Supermarket, St. Louis, Mo., is the winner of The Bon Ami Company's contest for the most unique display of Bon Ami products, conducted among brokers and retailers throughout the country. The independent supermarket operator won a "millionaire's vacation for two," a 15-day trip to Europe, for his crossword puzzle in conjunction with a Bon Ami display, which was judged the best of 1500 entries from 47 states submitted to Bon Ami. Judges were Roy Miller, editor, *Food Field Reporter*; John Crichton, executive editor, *Advertising Age*; and Eldrige Peterson, publisher, *Printers' Ink*.

Kiwi Moves to New Plant

Kiwi Coders Corp., Chicago, has announced that it is expanding to new and larger quarters on Dec. 6. The new plant is located at 4027 North Kedzie Ave., Chicago 18.

The company manufactures friction-driven and power-driven code dating and marking equipment for the aerosol and other industries.

•

George Merck Dies at 63

George W. Merck, board chairman of Merck & Co., Rahway, N. J. manufacturing chemists, died last month at the age of 63. He was a world leader in the chemical and pharmaceutical fields, and in 1944 received the Medal of Merit for his work as chairman of the U. S. Biological Warfare Committee during World War II.

He became president of Merck in 1927 and chairman of the board in 1949. He served as national president of the Manufacturing Chemists Association in 1951, and at the time of his death he was a director of the Colgate-Palmolive Co. It was under his direction that Merck developed penicillin, streptomycin, and cortisone.

•

Benedict in New Carbide Post

D. B. Benedict, formerly president of the Union Carbide Chemicals Co. division of Union Carbide Corp., New York, has been named a vice-president of the Union Carbide Corp., it was announced last month. In his new position he will head the corporation's chemicals and plastics operations.

To succeed Mr. Benedict as president of Union Carbide Chemicals, E. E. Fogle was named. H. D. Kinsey has been made president of the new Union Carbide Olefins Co. division, which will produce ethylene, propylene, and other hydrocarbon products. Both are former Union Carbide Chemicals vice-presidents.

—Convention Calendar—

26th Exposition of Chemical Industries,
Coliseum, New York ..... Dec. 2-6

American Institute of Chemical Engineers, Annual Meeting,
Conrad Hilton Hotel, Chicago ..... Dec. 8-11

Toilet Goods Assn., Scientific Meeting,
New York, N. Y. ..... Dec. 9

American Pharmaceutical Mfgrs. Assn., Mid-year and Eastern Section Meeting,
Waldorf-Astoria Hotel, New York, N. Y. ..... Dec. 9-11

Society of Cosmetic Chemists, Annual Meeting,
Hotel Commodore, New York, N. Y. ..... Dec. 10

Chemical Specialties Manufacturers Association, *Hollywood Beach Hotel,*
Hollywood, Fla. ..... Dec. 9-12, 1957

Compressed Gas Association, 45th Annual Meeting,
Waldorf-Astoria Hotel, New York, N. Y. ..... Jan. 20-21, 1958

Packaging Machinery and Materials Exposition, *Atlantic City, N. J.* ..... March 25-28, 1958

National Packaging Exposition (American Management Association)
Coliseum, New York, N. Y. ..... May 26-30, 1958

Toilet Goods Association, *Poland Spring House, Poland, Me.* ..... June 25-29, 1958

Predict Hair Lacquer Rise

BY 1960, American women will be spending more money for aerosol hair laquer than for any other cosmetic item. This is the prediction of Douglas Atlas, vice-president of G. Barr and Co., Chicago custom filler. Hair laquer output will jump to 150 million units annually within the next two years, according to Mr. Atlas. A total of 80 million units was produced in 1956, and 100 million are expected for 1957.

At an average retail price of $1.25 per unit, hair laquer will ring up an annual volume by 1960 of $187,500,000, — more than will be spent for lipstick, face powder, home permanents, or any single toiletry excepting soaps and dentifrices. Mr. Atlas bases his prediction on the increasing numbers of women discovering the spray method of hair "manageability," as well as on greater frequency of hair spraying by the individual user.

"This bounding growth," he said, "will be the inevitable result of important product improvements." He pointed out that technical advances resulting in longer "holding power" for the hair, a more natural feel, and "re-combability" after hair laquer application are helping establish the product as a toiletry "must" among the 65 million women who comprise the American cosmetic-using age group. He said that 70% of this group — or 45.5 million women — used an average of 1.7 containers of hair laquer in 1956.

"As women grow accustomed to and dependent upon hair laquer, they will use it consistently rather than occasionally as figures indicate they did last year," Mr. Atlas said. In addition, he pointed out that a budding new segment of the market consists of children whose hair can now be controlled by the same push-button spray method their mothers are finding so efficient.

With more frequent spraying by current users, and with new users being attracted to the product, Mr. Atlas said it "would not be unreasonable" to expect an "eventual" volume of 200,000,000 hair laquer units annually.

LETHANE

K.O.'s Flies 33% Faster

79% knockdown in only 4 minutes with sprays containing LETHANE 384 SPECIAL (3% by vol.)

It's well-known that users judge liquid household fly sprays by the speed of their knockdown. You can provide that sales-making advantage with LETHANE 384 SPECIAL insecticide.

In Peet-Grady Fractional Knockdown and Kill Tests, sprays containing LETHANE have knocked down as many flies in 4 minutes as other commonly used sprays do in 6. If you're wondering how much more LETHANE 384 SPECIAL costs, get set for a surprise. LETHANE not only results in faster knockdown and equal 24-hour kill, but it actually costs less than the other toxic agents in common use!

When properly formulated, liquid household sprays containing LETHANE are also completely safe in use, stable and compatible with other ingredients, and have a pleasing odor. Give your space, space-residual, and crawling insect sprays the advantages of LETHANE. Write today for the informative 16-page booklet, "Household Sprays Containing LETHANE."

LETHANE is a trade-mark, Reg. U.S. Pat. Off. and in principal foreign countries.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

G-D Holds Fall Reception

Upwards of 300 members of the soap, perfume, cosmetic and allied industries gathered at the University Club in New York on Wednesday, Nov. 13, to attend the annual Fall reception and cocktail party tendered by Givaudan-Delawanna, Inc. The reception was held on the occasion of the visit to the U.S. of Andre Givaudan, of L. Givaudan & Cie., S.A., Geneva, and his son, Leon Givaudan of Companhia Brasileira Givaudan, Sao Paulo. Both visitors enjoyed the opportunity of meeting with members of the industry and discussing with them current problems encountered both here and abroad. In the photo above are (left to right): Mr. Andre Wick, Cheramy, Inc.; Andre Givaudan, Givaudan, Geneva; E. R. Durrer, president of Givaudan-Delawanna, Inc.; F. Tourtois, Coty, Inc.; and Leon Givaudan, Cia. Brasileira Givaudan.

•

Colgate Appoints Scott

The Colgate-Palmolive Co., New York, has announced the election of Leo A. Scott as vice-president—manufacturing. He joined Colgate 26 years ago upon graduation from the University of Missouri. After serving in various positions in the company's plants in Kansas City, Berkeley and Jeffersonville, he was transferred to the Jersey City plant where he became production supervisor. In 1943 he was appointed plant Superintendent and in 1950 was named general superintendent.

Earlier this year, as part of the company's divisionalization program, Mr. Scott was appointed director of manufacturing of the Household Products Division. In his present post he succeeds the late Hugh R. MacMillan, Jr.

•

Canco Opens Coil Plant

A new facility for processing sheets of tinplate for can making from 15,000-pound coils of steel was opened at Milwaukee Nov. 13 by American Can Co., New York. The new plant, fourth of its type put into operation by Canco this year, is part of a $27 million program to set up similar facilities in strategic canning areas all over the country.

•

Toni Elects S. K. Hensley

The Toni Co., a division of the Gillette Co., Chicago, has announced the election of Stuart K. Hensley to be president and chief executive of the firm. Formerly executive vice-president of Toni, Mr. Hensley joined Gillette in 1946 as a sales representative in Florida.

•

Breck Appoints T. M. Glynn

The appointment of Thomas M. Glynn as plant manager has been announced by John H. Breck, Inc., Springfield, Mass., manufacturer of hair care preparation and liquid shampoos. Mr. Glynn joined Breck's accounting department in 1943 and was appointed production manager in 1946.

New Resin Introduced

(*From Page* 57)

of sodium alginate, 4 poises for hydroxyethyl cellulose, and 12 poises for the highest-molecular-weight grade of carboxymethyl cellulose.

POSSIBILITIES of hazards in using these resins, according to Carbide researchers, seem to be remote. The standard two-year toxicological feeding tests are not completed, but preliminary 90-day feeding tests indicate that the resins have low toxicity. Range-finding toxicology tests also show only minor eye and skin sensitivity in test animals.

When administered orally to rats, "Polyox" showed a low order of toxicity. For example, a single LD 50 dose to rats is in the same general quantitative range as lactic acid. The resin was fed to rats for a 90-day period of time, and 4% in the diet of rats was without effect.

The resin does not penetrate the skin in harmful amounts and a single skin absorption test upon rabbits demonstrated that one gram per kilogram bodyweight as a 5% solution killed none of the test rabbits. When tested for rabbit skin irritation, a 5% solution in water caused only minor irritation. The skin sensitization potential of the resin was evaluated by the guinea pig sensitization test. By both the intradermal and topical methods of application, none of the animals tested were sensitized.

The resins also pass the Draize eye healing test, since 5% solutions produce negligible irritation when applied to rabbit eyes.

Carbide is now producing the resins in South Charleston, W. V., in semi-commercial pilot quantities. Substantial commercial-scale production is scheduled for early 1958, and plans are reportedly formulated for a large-scale unit to be completed in 1960.

The new resins, developed at Carbide's South Charleston research center, are said to represent "a significant advance in polymerization technique, opening up an entirely new field of high polymer chemistry." They are based on the discovery by Carbide chemists of new methods that make it possible to link together thousands of ethylene oxide molecular units into enormously long polymer chains. The longest of these linear polymers have molecular weights as high as several million. Their exceptional molecular weights and linear structures give them unusual thickening power in water solutions.

"Polyox" resins are produced as white granules in four grades with a range of molecular weights: WSR-35; WSR-205; WSR-301; and WSR-701. They are available in eight-ounce sample bottles and in 5-, 25-, and 50-pound containers. A development price of $1.50 per pound has been set for grades WSR-35, -205, -301, and -701.

Carbide's laboratory research, design engineering, and production studies reportedly indicate that Polyox resins can ultimately be manufactured to permit a selling price range of 35 to 50 cents per pound. The attainment of this price level depends upon large-volume use of "Polyox" resins in industrial applications, the company points out.☆

THERE'S NO SUBSTITUTE FOR

Aerosol

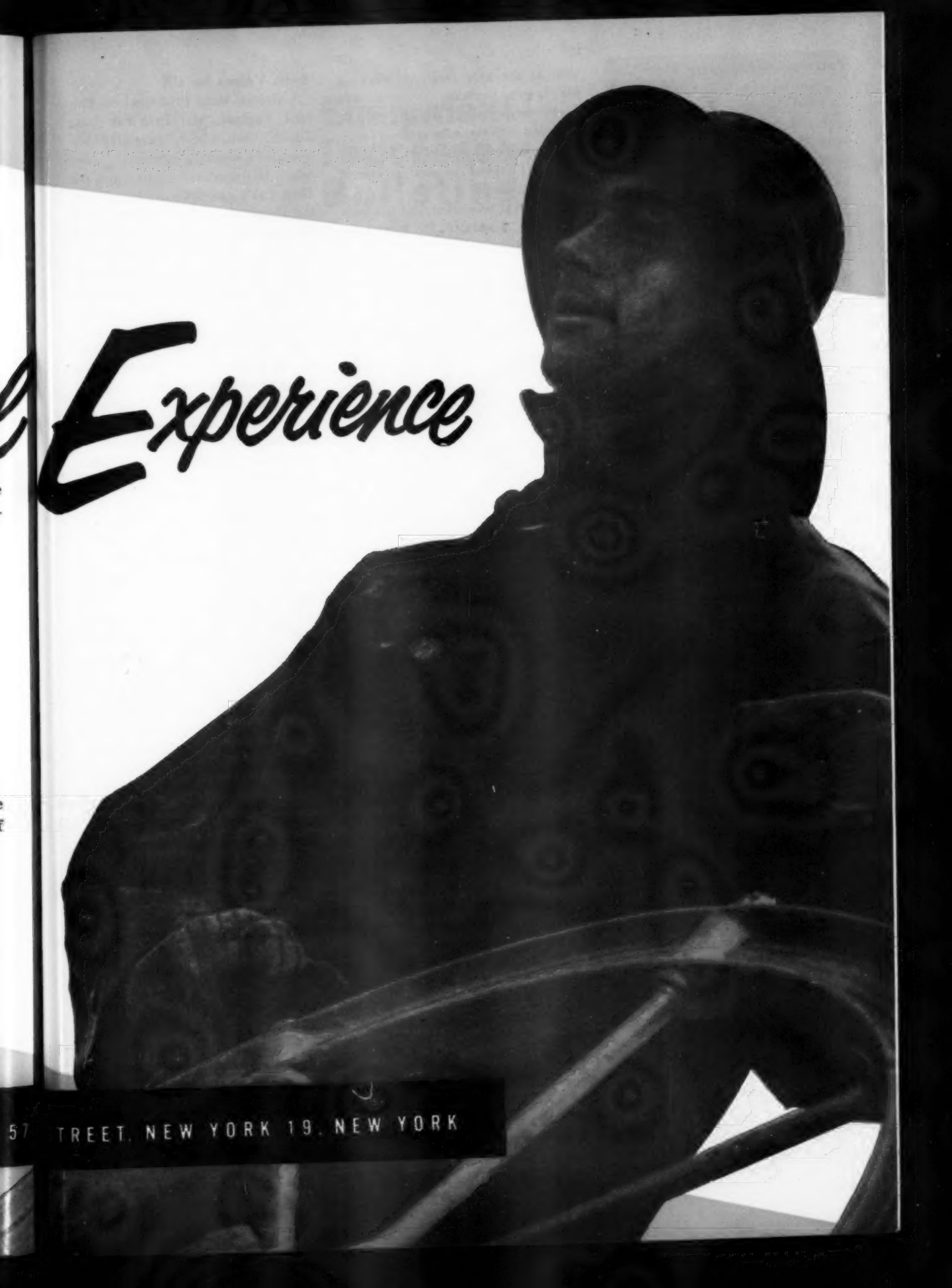
There are a few technical rough spots in adopting the new pressurized package. Here the technical know-how and experience of the aerosol research laboratory of van Ameringen-Haebler can guide you safely.

Customers of VAH enjoy the following advisory services:

- FORMULATION TO ACHIEVE COMPATIBILITY
- EVALUATION OF NEW PRODUCTS
- TEST PACKAGING
- VALVE RECOMMENDATIONS
- FILLING PROCEDURES
- PRODUCTION TROUBLE SHOOTING

Although primarily concerned with matters of fragrance, VAH established this complete aerosol research laboratory to assist its customers in every phase of this new field of packaging from product formulation to pilot runs for market testing.

van Ameringen-Haebler, Inc. 521 WEST 57


Experience
57 TREET, NEW YORK 19, NEW YORK

Packaging Machinery Show Set

Space reservations by exhibitors in the 1958 Packaging Machinery & Materials Exposition are currently 19% larger than the total area occupied by packaging machinery and packaging materials in the preceding display held in Cleveland in 1956. The exposition is scheduled for March 25-28.

K. B. Hollidge, Arthur Colton Co., Detroit, chairman of the exposition committee which will supervise this display in the Atlantic City Convention Hall, revealed last month that more than 51,000 sq. ft. of display area has been bought by makers of packaging machinery, bags, foils, labels, envelopes, stencils, adhesives, etc.

Mr. Hollidge said that the rush for space had necessitated that applications for display space be closely scrutinized to confine the exposition exclusively to machinery and materials of specific relation to packaging. In addition, admission to the display area, will be limited to men and women with basic interests in the technical development in packaging machinery and materials.

Within the display area the exhibits will be staffed by design engineers, management executives, service people, and marketing men. Exhibitors are including this broad range of personnel in their booths in order to be of maximum service to all show visitors.

This exposition will be amplified by daily technical meetings to be conducted by the Packaging Institute, New York.

•

Givaudan to Move Offices

The Givaudan Corp. and its associate companies, Givaudan-Delawanna, Inc., Givaudan Flavors, Inc. and Sindar Corp., New York, are now preparing new, enlarged executive and sales offices for occupancy in spring 1958. The company has just concluded a long-term agreement, leasing the seventh and a portion of the eighth floors in the Warner Brothers Building, 321 West 44th Street, New York 36.

The announcement said that a sizable increase in space wil be available at the new location, allowing for larger perfume, cosmetic and flavor laboratories. These will be equipped with the most modern facilities available to enable the company to further expand the services offered to its customers.

The actual relocation date has been tentatively scheduled for late April 1958.

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Utermohlen to Velsicol

Dr. William P. Utermohlen, Jr. was recently appointed director of research of Velsicol Chemical Corp., Chicago. He

Dr. William P. Utermohlen

brings an extensive research background to his new post, his most recent position having been that of assistant research director of the Toni Division of the Gillette Co.

Previous to his work with Toni, Dr. Utermohlen was with the Tennessee Eastman Co., the Institute of Textile Technology, and the Permutit Co., where he served as chief research chemist.

At Velsicol he will be responsible for all fundamental and applied research in agricultural, chemicals, polymers, organic processes, resin applications, and other fields of new interest.

•

Argentine Co. Moves

Alberto Trilles & Cia., SRL, Buenos Aires, Argentina, has been reorganized and will conduct business under the name Aerosol Argentina, Alberto Trilles & Cia., SRL. The firm has moved to Guido 2465, Buenos Aires.

Aerosol Argentina is in the process of installing new filling lines, and will shortly have a capacity of 12,000 to 15,000 units per day. The company is also assembling a new laboratory for research on aerosol formulations and the manufacture of special aerosol products.

•

Armstrong Appoints Wade

William T. Wade has been elected assistant treasurer of the Armstrong Cork Co., Lancaster, Pa. He joined the firm in 1924, and has been assistant manager of the treasurer's office since 1947.

Swiss Valves for UK

Universal Metal Products Ltd., Salford, England, and Druk-Pak Ltd., Zurich, Switzerland, recently announced a licensing agreement under which Universal will produce and sell Druk-Pak's new foam-action valve in the United Kingdom. Under terms of the agreement, Universal, which had previously limited its aerosol activities to the manufacture of aluminum cans, will market the Swiss company's complete line of filling and laboratory equipment.

The Druk-Pak foam valve, which will be imported until Universal can set up its own production line, is said to be particularly designed for high-speed pressure filling. Universal will also introduce a second valve intended for use with insecticides and other sprays.

•

Bon Ami Wins Award

The Bon Ami Company's promotion of "Jet-Spray Bon Ami" was voted one of the eight best new product introductions in the 1956-57 annual poll of retailers conducted by *Food Field Reporter* and *Food Topics*.

Participating in the poll were 4,513 retailers working or serving more than 120,000 stores. They considered a record total of 16,000 promotions, national and regional, including new product introductions, deals, coupons, premiums, contests, consumer and trade advertising.

Bon Ami introduced "Jet-Spray Bon Ami" in the summer of 1956. The eight national new product introductions voted as best by the retailers in the poll were selected from an estimated total of 10,000. Erwin, Wasey, Ruthrauff & Ryan, Inc., is the Bon Ami agency.

•

Chemway Appoints Hoskins

Dr. Walter H. Hoskins has been appointed vice-president and director of clinical investigation of Crookes-Barnes Laboratories, Inc., Mountain View, N. J., a subsidiary of the Chemway Corp. He was formerly director of clinical investigation for the Warner-Chilcott Laboratories Division of the Warner-Lamber Pharmaceutical Co.

Equipment–Processes–Bulletins–

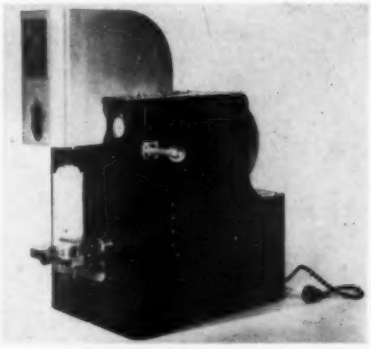
Aero-Matic Labs Unveils New Crimp Tester

Aero-Matic Laboratories Corp., Yonkers, N.Y., aerosol equipment manufacturer, last month unveiled two in a new series of items of aerosol equipment. The first is a "Dry Tester," a non-destructive seal tester to detect faulty seals between aerosol mounting cups and the container. It may be used to detect leakage, to assist in the setting of the crimp heads, as a spot check on lines, and in laboratories for quality control and product development. The "Pry Tester" is also said to be applicable

for revealing defects in the can or valve seat.

The unit stands 28 inches high, and has an aluminum cast body. Working surfaces are of stainless steel, with a tungsten carbide pry jaw.

The second unit, called a "Hydraulic Laboratory Crimper," is designed for small plants and pilot runs. It is self-contained, hydraulically operated, and plugs into any standard electric wall outlet for its source of



power. It uses a standard production type crimping head to simulate a production line crimp and has a self-contained hydraulic system which can be used for the attachment of new equipment being developed for use in conjunction with the unit.

Further information can be obtained from the company at 483 Nepperhan Avenue, Yonkers, N.Y.

•

Anchor "Pinked-Cut" Dip Tube

A pinked-cut aerosol dip tube which prevents blocking of the liquid flow to the valve (if the tube seats flush with the bottom of the aerosol container) has been developed by Anchor Plastics Co., Long Island City, N. Y.

The tube is serrated at one end only; the other end has a standard, square cut for a good seal to the valve nipple. Pinked-cut dip tubes are furnished straight, without the usual curvature required for square-edge cuts, permitting easier handling by hopper feeding techniques on automatic staking machines. They are also advantageous in high velocity discharge applications, such as aerosol fire extinguishers.

Pinked-cut aerosol dip tubes are extruded in Anchor Plastic's Aerofles "P," a crack-resistant formulation of polyethylene which has been used by the aerosol industry for the last few years. These dip tubes may be specified in any diameter, wall thickness, or length. Stack-packing, another feature which ensures straight tubes regardless of how long they are stored before assembly, may also be specified.

The development of the pinked-cut dip tube is an outgrowth of Anchor Plastics' experience in dip tubes for various other industries. The original application for a serrated-edge cut was in a syphoning device used on garden hose insecticide dispensers.

•

Du Pont Unveils New Aerosols

Two new aerosol products have been unveiled by DuPont at the Lawn, Garden, and Outdoor Living Division of the National Hardware Show. The show was held the week of Oct. 14 at the New York Coliseum.

One of the products, called "DuPont Insect Repellent," is a formulation based on diethyl toluamide. The second, "DuPont Tree Wound Dressing," is to provide rapid and easy treatment of wounds, resulting from pruning, grafting, or accidents. The aerosol-dispensed material sets quickly, forming a black seal against the entrance of decay-producing organisms.

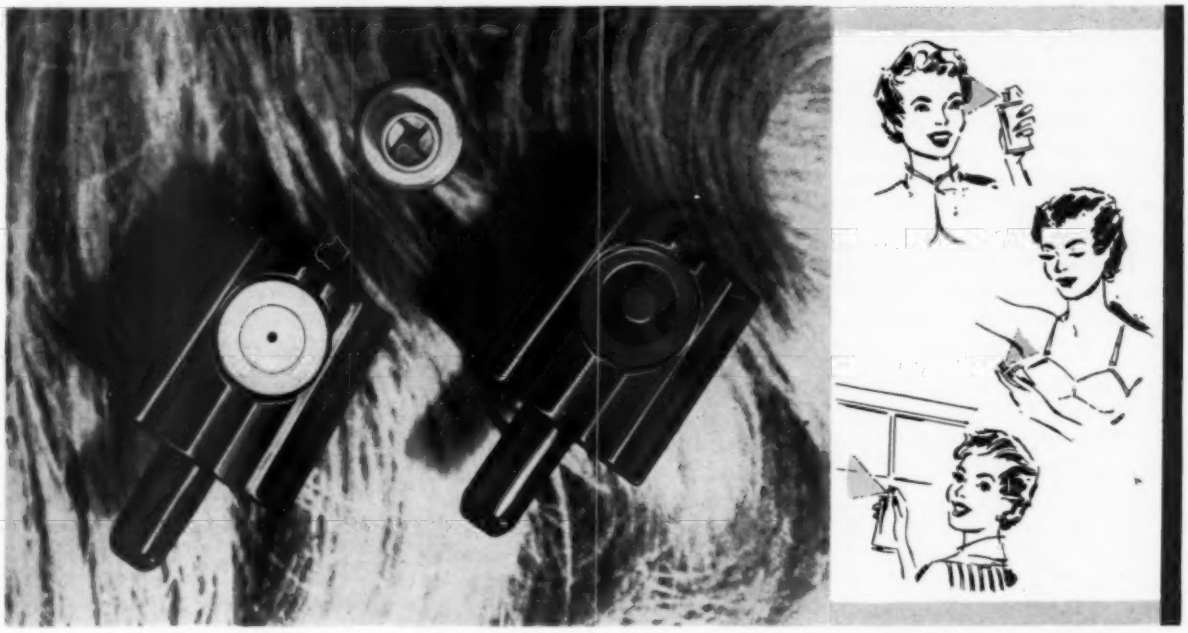
•

New Aerosol Germicide

"Quiff", an English liquid disinfectant and deodorant used for years in homes and institutions all over the world, is now being produced as an aerosol germicide. The product is being marketed by New Hygiene, London, England.

NEWMAN-GREEN CREATES NEW BREAK-UP VALVE FOR MORE EFFICIENT, MISTIER SPRAY PATTERNS

New Aerosol Valve Is Ideal For Dependable Operation With Hair Lacquers, Colognes, Personal Deodorants, & Window Cleaners



The new valve head designed by Newman-Green offers you the most efficient mechanical break-up spray available for a variety of applications. This new aerosol valve gives smooth and dependable operation in use with hair lacquer, cologne, personal deodorant, window cleaner and other low pressure formulations. It provides consistent and uniform spray patterns at all times.

As is the case with all Newman-Green valves, the basic valve unit has not been changed. Only the spray head is new. The new model gives a fine atomization that utilizes low pressure products to the fullest. It eliminates excessive volume during use, keeps spray light, mistier and very effective in use.

For all kinds of designing, engineering, and manufacturing of aerosol valves, come to Newman-Green. We take pride in helping you produce even better aerosol products for today and the future.

Newman-Green offers you a wide selection of spray heads in a variety of colors. All are interchangeable in seconds.

Newman-Green, Inc.
151 Interstate Road
Addison, Illinois

Please send me your price schedule and free valve samples.

Name_____ Title_____

Company_____ Address_____

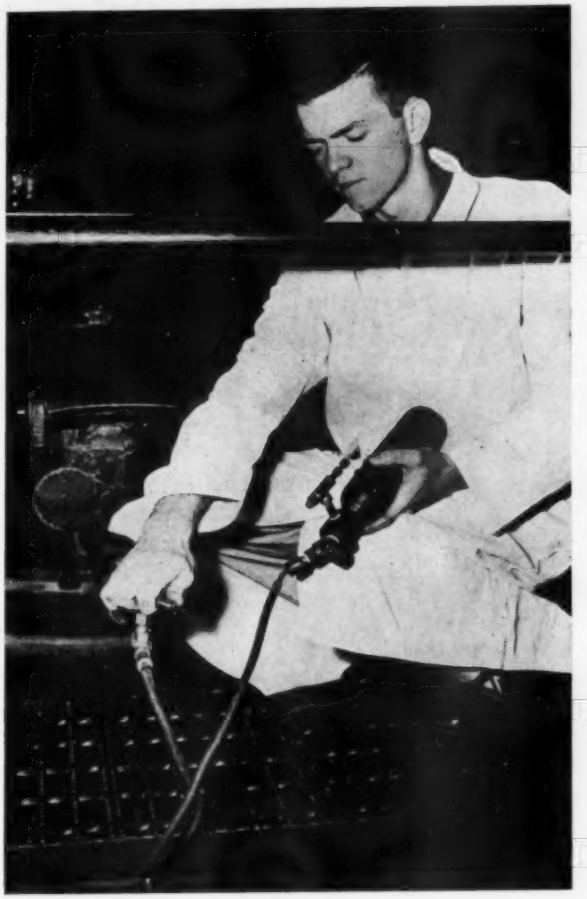
City_____ State (Country)_____

Valve Application_____

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

151 Interstate Road, Addison, Illinois

G. Barr Using "Thief" for Propellant Testing



Atop a railroad tank car bringing propellant to the Chicago plant of G. Barr and Co., a laboratory technician draws a sample of the tank contents into a "thief" (the cylinder in his left-hand). The sample is then taken to the Barr laboratory for analysis of the propellant by gas chromatography.
This procedure, recently incorporated into Barr's quality control system, is said to be the first direct method for analysis of propellants used in aerosol production. It replaces previous indirect propellant analyses, such as pressure and specific gravity tests, and permits testing propellants upon arrival at the plant, before shipments are transferred to permanent propellant storage tanks.

New Lacquer Introduced

Amber Oils, Ltd., London, England, recently introduced "Ruby," a hardened resin-type of lacquer in an aerosol container. When sprayed on metal surfaces, the product forms a hard corrosion-inhibiting coating which is strongly resistant to scuffing and abrasion. One tin of the product will give a guaranteed minimum coverage of 150 square feet.

•

Sole Emulsifier Bulletin

The Sole Chemical Corp., Chicago, recently announced the publication of "Technical Bulletin #1057-2," describing a broad-range type solvent emulsifier, "Sole-Mulse B." This soapless emulsifier is designed for a wide spectrum of hydrocarbon solvents, and in low use-levels is said to provide excellent hard or soft water emulsifiability. This product is used to formulate emulsion degreasers or other industrial emulsion products as well as oil fire control agents and specialty aerosol degreasers. Copies are available from the company's home office, 27 E. Monroe St., Chicago.

•

ICC Regulations Issued

A new edition covering Interstate Commerce Commission Regulations as they apply to the transportation of aerosols and other materials by land and water, is now available at the Bureau of Explosives, 30 Vesey Street, New York 7. Price of the volume, which bears the title "Agent H. A. Campbell's Tariff No. 10—Interstate Commerce Commission Regulations for Transportation of Explosives and Other Dangerous Articles by Land and Water, In Rail Freight Service and by Motor Vehicle (Highway) and Water including Specifications for Shipping Containers," is $4 per copy postpaid.

New Use for Acrylic Spray

Protecting valuable trees from the effects of decay after pruning has been greatly simplified by spraying the fresh wound with "Krylon Crystal-Clear Acrylic Spray." This spray is said to form a protective, waterproof, non-toxic coating over the wound, drying in minutes after application. The spray prevents unsightly rotting at this weak spot, and the pruned area retains its neat appearance, according to Krylon, Inc., Norristown, Pa., aerosol marketer.

Previously, household or tar paint was brushed on the pruned area. However, these materials were inconvenient to use. In addition, the brush and can were difficult to hold and work with safely at high tree elevations.

•

Aerosol De-Icer

A de-icer formulation for aerosol packaging has been developed by DuPont's "Freon" Products Division. The division reports that laboratory tests indicate that ice will not form on a windshield that has been sprayed with the compound, and ice layers to the thickness of 1/16th of an inch will melt in about three minutes. DuPont will not market the de-icer, but will make it available to aerosol packagers.

•

Polyethylene Container

A new line of deodorants in a linear polyethylene bottle has been introduced by Skuse & Co., London, England. The container (described in *Aerosol Age* for August) is being made by Cascelloid Ltd., Leicester, and the Skuse deodorant package will use a Precision valve.

•

Valve Stem Packing

The Garlock Packing Co. of Palmyra, N. Y., recently introduced a virtually universal valve stem packing for medium temperature service. The new packing material, designated "Style 5022," is a molded type valve stem packing ring made from copper wire-inserted asbestos yarns which are braided and impregnated with Teflon suspensoid and die-formed into rings.

New Fire Extinguisher

L. Vischlaper, Amsterdam, Netherlands, import export firm, has announced production of an aerosol fire

extinguisher with a unique "fire-chief's hat" cover cap. The product will be marketed in the Netherlands and in other countries in Europe.

•

New PVP Booklet

A detailed, 48-page booklet on the versatile, high molecular weight polymer PVP (polyvinylpyrrolidone), describing its chemical and physical properties and the numerous applications so far developed, has been published by the Acetylene Chemicals department of Antara Chemicals, a sales division of General Aniline and Film Corp., New York.

Among the uses discussed are cosmetics, pharmaceuticals, adhesives, detergents, soaps, textiles, paper, inks, beverage clarification, protective coatings plastics, and agricultural chemicals. Also described are its film-forming properties, compatibility, stability, protective colloid action, cross-linking, detoxifying properties, and its physiological acceptability.

Copies may be obtained from Antara Chemicals, General Aniline and Film Corporation, 435 Hudson Street, N. Y. 14.

•

Tech. Bulletin on "Gibrel"

Merck & Co., Rahway, N. J., has just issued a booklet on the gibberellins, with particular reference to Merck's "Gibrel," discussing agricultural and horticultural uses, summarizing responses of various crops to treatment with the gibberellins as reported in research to date, and listing analytical methods. The booklet also includes an exhaustive bibliography, with abstracts of 188 papers that have been published on the subject of the gibberellins. Copies are available on request.

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- Up to 20 injections per minute
- For semi-automatic or automatic operation

IG purging unit can be used with nitrogen

MODEL **14A**—A propellant injector with up to 500 cc. capacity.
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Up to 300 CU. CM. capacity (other spec. same as model 14A)

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. . . lowers costs in several aerosol formulations

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Many other money-saving formulations contain Chlorothene, including moth-proofing and water-proofing products and insecticides. In all these formulations, Chlorothene cuts costs as a pressure depressant. It often permits elimination or reduction in the use of solvents with objectionable odors. It's a more stable, safer solvent (low in toxicity) and it has application in many nonflammable formulations.

We'd like to send you some information about Chlorothene—uses, costs, properties and other interesting facts. Write us today. THE DOW CHEMICAL COMPANY, Midland, Michigan, Department SO-1026M-5.

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APPLY MORE THAN

100 AEROSOL VALVES

PER MINUTE

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CAPEM H-O-FV

If applying aerosol valves is a bottleneck in your packaging operation, here is your solution — the CAPEM H-O-FV.

Rich Products Corp., Buffalo, N. Y., manufacturers and distributors of Rich's "Whip Topping", recently installed one of these machines. Production has increased and results have been most satisfactory since installing the H-O-FV on their aerosol container line.

The Model H-O-FV sorts and applies aerosol valves to whipped cream containers at speeds in excess of 100 per minute. Stainless steel and chrome-plated parts are used wherever necessary to comply with dairy industry regulations. Electric switch gear is mounted conveniently above conveyor to facilitate washing the line at shut-down time.

Changeover from one container size to another is simple and easy.

For complete information on the CAPEM H-O-FV and other Consolidated packaging machinery, write Sales Manager, Consolidated Packaging Machinery Corp., 1400 West Avenue, Buffalo 13, N. Y.

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3 New Croda Booklets

Croda, Inc., New York, last month issued three new booklets of interest to the aerosol industry. The three are entitled "Polywax," "Better Results with Alginates," and "Crodacol Fatty Alcohols."

"Polywax" is a non-ionic emulsifying wax based on stearyl alcohol. Croda predicts that the material will find wide use in the formulation of liquid stream-dispensed products employing nitrogen as the propellant. Alginates are used as thickeners, emulsifiers, gelling, and whipping agents in food products and are said to be outstanding for their good film forming properties. The new booklet is printed in Norway by A/S Protan, Drammen, manufacturers of sodium alginate from seaweed.

The third of these booklets is actually an information data sheet on the company's range of sperm oil fatty alcohols. Croda's "OCA Oleyl/Cetyl Alcohol" is described as having semi-solid consistency and good emollient and spreading properties in place of the regular cetyl alcohol.

The two booklets and the fact sheet are available by writing to the company at 51 Madison Avenue, New York 10.

•

New Aerosol Shellac

"Angelo Super Blonde," a new decolorized shellac for use in aerosol hair lacquer formulations, has been introduced by William Zinsser & Co., New York. Said to have only negligible wax content, the shellac is decolorized by an activated carbon process and is said to have a longer storage life than the bleached type (owing to lack of residual salts from the chemical bleaching process usually present in bleached shellacs).

•

Gov. Test Methods Booklet

The U. S. Government Printing Office recently made available to the public its "Methods of Testing Small Fire Extinguishers" (Catalog No. C 13.29:150). The nine-page booklet is a report of a study made of methods of testing small handportable fire extinguishers considered suitable for application to flammable liquids. It costs 15¢.

DuPont Develops Sheep Spray

The sheep herder's identification problems at breeding time and in sorting the flock into sale lots might well be eased by a new aerosol fleece-marking formulation developed by the DuPont Co., Wilmington, and offered free of charge to interested packagers.

Harmless to both the animal and its wool, the formulation consists of lanolin, wood resin, naphtha, odorless mineral spirits, and a violet dye, along with a fluorinated hydrocarbon propellant to provide dispensing pressure. The dye mark produced by the formulation is stable to water but is removed easily from the wool by normal scouring processes.

The recommended formulation for aerosol packaging provides a pencil-like jet of dye which, at a distance of 12 inches from the fleece, makes an indelible mark about one inch in diameter. Big advantage of the self-spraying package rests in its ease of application and elimination of the messy job of mixing dye solutions in the field for application by brushing or daubing. The fleece marking solutions have many uses, such as identification of inoculated or bred stock within the flock or visual identification of animals marked for slaughter as opposed to those being kept for wool.

Although developed specifically to meet the need for a fleece marking spray, the formulation is equally adaptable to use as a marking or identification solution on all livestock.

•

Teflon Transfer Lines

"Teflon" transfer lines are finding increased use for transferring propellant and product in aerosol filling lines, reports *The Flying A*, a company publication of Aeroquip Corp., Jackson, Mich., supplier of "Teflon." "Teflon" is reported to be "made to order for the exacting requirements of this business because it operates under extreme temperature ranges, does not absorb chemicals, and is not affected by highly corrosive chemicals such as methylene chloride."

The publication carries pictures of these transfer lines being used at the aerosol plant of Connecticut Chemicals (Canada) Ltd., of Toronto. The "Teflon" hoses are used as carrying lines on all the transfer equipment, mixing tanks, and filtration equipment in the plant.

•

Aerosol Poultry Sprays

"Where ventilation can be adequately controlled, aerosols can be very effective in the treatment of contagious catarrh in poultry, reports the *Farmer's Gazette*, a magazine published in Dublin, Ireland. The disease, a serious respiratory ailment that has seriously affected poultry flocks in certain areas of Europe, can reportedly be satisfactorily controlled through use of sulfa and other aerosol sprays.

Research work on poultry diseases, through use of aerosols, is believed being done by several U.S. drug manufacturers, including Merck & Co.

•

Tabutrex Bulletin

Glenn Chemical Co., Chicago, has issued a technical bulletin describing "Tabutrex," the company's insect repellent. The bulletin outlines the results of a series of test carried out by Glenn to determine how "Tabutrex" is affected by moisture, humidity, or ultraviolet light. It is pointed out that these are important considerations when the repellent is used in livestock sprays, one of its principal uses.

Glenn is also making available copies of a suggested label for packagers of "Tabutrex." It lists ingredients, methods of use, etc. Copies of both are available by writing to the company at 2735 No. Ashland Ave., Chicago 14.

•

CSMA Meeting Proceedings

Copies of the official proceedings of the 43rd midyear meeting of the CSMA, held in Chicago last May 20-22, are available at the CSMA office, 50 E. 41st Street, New York 17. The 193-page booklet contains the complete text of all the meetings of the CSMA's divisions, and costs $7.50 per copy postpaid in the U. S. and Canada and $8 per copy to other countries.

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IF you have an aerosol packaging problem, we can do the job for you. Our latest research facilities and production equipment will handle any difficult or unusual formulation. Here are a few of the many products we are now filling successfully:
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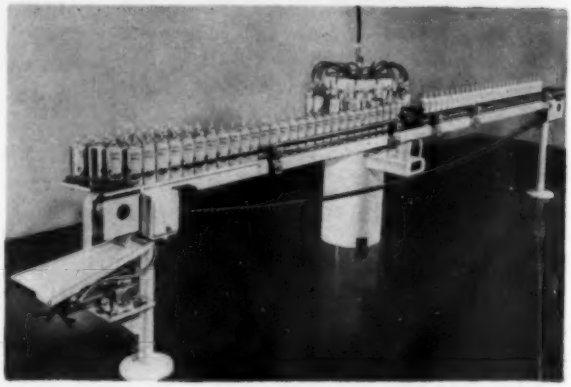
Alpha Introduces New Gasser-Shaker



To simplify and increase production in aerosol can gassing and mixing, Alpha Engineering & Machine Works, Inc,. Mt. Prospect, Ill., has announced a new rotary feed machine that combines both of these steps in one operation. Named the "Alpha A-206 Roto-Shake," this new machine automatically moves cans along a pallet type conveyor to a central rotary feed head. Here the cans are automatically gassed and shaken as they travel through the rotary feed cycle . . . and are moved again to the conveyor for automatic removal from the machine.

Because of rotary feed design, production can be continuous. The machine is adjustable to handle up to 60 cans per minute with a 12 second shake cycle. Longer shake cycles are obtained by slowing the rate of feed. Valve design is said to hold gas waste to a minimum, providing savings in gas cost of many dollars per day. Machine design has been simplified to give minimum maintenance; no compressed air or complicated timing devices are required for mechanical operation. The unit is reported to be quiet in operation and easy to clean.

The "Alpha A-206 Roto-Shake" is built for handling 12 and 16-ounce cans. It is equipped with stainless steel gassing valves and is suitable for liquid foods and practically any other type of product where mixing is desired. The rotary head contains 15 stations, and each valve unit is built with a "no-can—no-charge" control. The pallet-type conveyor is a nylon flat-top design that cannot snag cans.

Complete information may be obtained by writing to the company at 802 West Central Road, Mt. Prospect, Ill.

New Use for Propane Tanks

Outdoor liquid propane tanks, of the type used in some areas of the country for storing home cooking and heating gas, are now being used for storage of fluorinated hydrocarbon aerosol propellants, reports Koven Fabricators, Inc., Dover, N. J. The firm, a supplier of all types of tanks for industry, reports that 500 and 1000-gallon tanks are finding increased demand by aerosol fillers for storage of not only propellant, but various other liquid components as well.

Koven points out that the tanks are comparatively easy to handle, install, and move from place to place in a filling plant or laboratory.

•

New Musk Introduced

Polak & Schwarz, Inc., New York, has introduced a new macrocylic musk called "Musc 781". Woody and slightly fruity overtones are the distinguishing features of this new aromatic, which, in addition to its impressive fixative properties, makes itself felt at all stages in evaporation in perfumes at very low concentrations. This property is said to be particularly evident in alcoholic solutions, where it produces a mellowing effect on the alcohol.

A descriptive booklet and samples are available from the company at 667 Washington Street, New York 14.

•

New ARS Booklet

SCREENING TESTS OF MISCELLANEOUS COMPOUNDS CONTAINING THE METHYLENEDIOXYPHENYL STRUCTURE, by W. F. Barthel and B. H. Alexander, Entomology Research Division, ARS, USDA. This new booklet, dated Sept. 1957 and designated ARS-33-42, is a report on the authors' study of derivatives of methylenedioxybenzene. It reports on the preparation, physical properties, and biological effects of some miscellaneous compounds, and the derivatives are screened routinely as mosquito larvicides, body louse and chigger toxicants, and mosquito repellents.

The booklet is available by writing directly to the USDA's Entomology Research Division, Washington, D. C.

STAY PUT
CONDITIONS HAIR
Revolutionary new Stay Put not only trains your hair but also conditions as it sets. Stay Put's unique conditioning ingredients, HUMIBLOCK and PVP, keep hair younger, more supple. HUMIBLOCK prevents dryness, ends brittle, "washed-out" hair. PVP increases hair softness, adds new luster and radiance. New Stay Put is mild, too—safe for both your hair and your children's.
CAUTION FLAMMABLE—DO NOT USE NEAR FIRE OR FLAME
TO USE
1. The unique grooved button guarantees perfect aim every time. Remove top and hold can upright 10 to 12 inches from hair to get best effect from Stay Put's finer, more effective mist.
2. Apply in short, quick puffs. Stay Put dries fast but with no lacquer stiffness or harsh shine, keeps waves softly set for many hours.
Does not contain lacquer
PIN-CURLS, TOO!
Your pin-curls will last hours longer when they're set to stay with Stay Put. Just moisten hair with water—pin set and spray. Comb out when dry for the softest, longest-lasting curls you've ever set.
Do not incinerate can. Keep away from excessive heat
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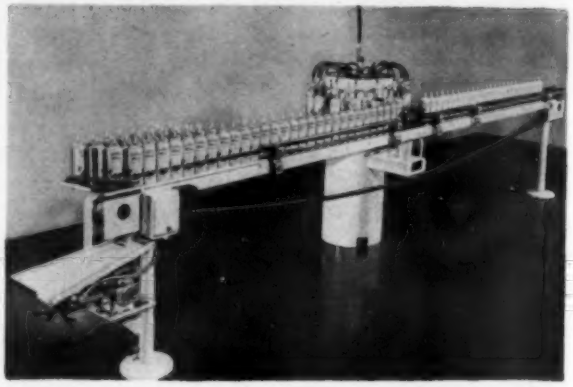
Alpha Introduces New Gasser-Shaker



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TO USE

1. The unique grooved button guarantees perfect aim every time. Remove top and hold can upright 10 to 12 inches from hair to get best effect from Stay Put's finer, more effective mist.
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Your pin-curls will last hours longer when they're set to stay with Stay Put. Just moisten hair with water—pin set and spray. Comb out when dry for the softest, longest-lasting curls you've ever set.

Do not incinerate can. Keep away from excessive heat

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Who's Who in the Aerosol Industry

When **C. S. Stephens** began work in American Can Company's Brooklyn factory back in 1922, the tin can was just a container used to pack pantry foods, paints and a few other industrial products in relatively low volume. The scores of cans now specially designed and produced to fit thousands of different products, including the revolutionary pressure can, were still in the future.

All through his career at American Can, Mr. Stephens has been interested in industrial type containers, and when the pressure can was born it became one of his primary interests. He foresaw many useful adaptations for it in industry.

Some of that potential has been realized, he says, but there is much more to come. The future, he is convinced, will see pressure-packed items which were undreamed of just a few years ago, particularly in food and pharmaceutical applications. They will be made possible by newly designed pressure containers, combined with brand-new types of propellants and valves. This year, Mr. Stephens believes that more than 400 million pressure cans will be used, a jump of nearly 15% over 1956. The ratio now is about four cans for non-food use to one for food products.

Mr. Stephens worked from 1922 to 1925 in Brooklyn, then joined the New York sales department. Between 1925 and 1942, he served in sales in Pittsburgh, Baltimore and Philadelphia. He became assistant district sales manager in Rochester in 1942. In 1948, he took over the position of Central division's "non-food" commodity manager, with offices in Chicago. He came to New York in 1952 to fill a similar position in the "non-food" section of general sales.

Mr. Stephens was an all-around athlete in school. He has many hobbies — gardening, stamp-collecting, golf, etc., but one of the major outlets for his inquisi-

tive mind is the contemplation of possible uses for the neat, handy pressure can.

Adam Wygnanski, general manager of Protection Chemical Products Co., Montreal, is a chemical engineer by profession. Just over six years ago he opened the first plant in Montreal for private label aerosol production, and since then has guided his company's rapid growth to a point where the company can offer complete filling facilities for all types of aerosol products.

Mr. Wygnanski has been 20 years in the chemical and pharmaceutical field, and has widespread international experience in both fields. He is a member of the Chemical Institute of Canada, a Fellow of the Royal Chemical Society of the United Kingdom, and a member of the Society of Chemical Industry. After World War II he was chief chemist for the French Synthetic Chemical Co., Paris, and at the same time was a member of The French Society of Cosmetology.

Norbert G. Smith, director of manufacturing and engineering for Aerosol Techniques, Inc., Bridgeport, is a veteran in the aerosol field, with more than a decade of experience behind him.

Graduated in 1941 from Villanova University with a B.S. in chemical engineering, Mr. Smith joined Joseph E. Seagram and Sons, Inc., and subsequently was named manager of that company's Fairfield, Ky., plant.

He then entered the aerosol industry and became chief chemist with Connecticut Chemical Research Corp. To his aerosol activity he brought the benefits of long experience in production methods, and the techniques of automation have remained one of his primary interests — even during recent years when he has con-

(*Continued on Page* 110)

Why sell your products by the ounce?

You can now combine the accepted convenience of aerosols with King Size packaging, and King Size packaging means volume sales in quantity and in dollars.

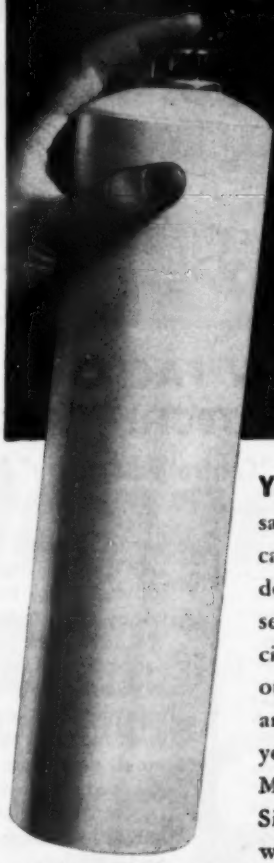
YOU CAN NOW INCREASE YOUR VOLUME WITH

TMC

55-75-132 CU. IN.

KING SIZE

AEROSOL CONTAINERS



Working Pressure 240 psi
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You need no longer limit your sales with small 8 and 12 ounce cans that don't hold enough to do the job. Whether you are selling to household, commercial, institutional, industrial or other markets, you sell more and customers use more when you sell in bigger containers. Manufacturers like TMC King Size Pressure Containers . . . wholesalers like them . . . dealers like them . . . users like them! Whether you sell fluid, viscous or dry materials, TMC King Size disposable containers give you a challenging merchandising weapon worth looking into. Write or phone for "The Latest Thinking on Marketing Under Pressure!"

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Pegasus President Reports on Europe's Economy

AFTER a three-month tour of branch offices in Europe, Paul N. Weil, president of Pegasus International Corp., New York, foreign trade consultants, returned to the U.S. late in October.

Mr. Weil said he had been particularly impressed by the progress made in all sectors of Europe's economy. This progress, he said, has "stimulated a greater demand for American production methods and 'know-how,' for patents, licenses, and research and development experience." Also, foreign firms are eager to share their skills with interested American companies on a reciprocal basis. "A growing number of European firms — both large and small — are manifestly interested in importing 'know-how' and exporting their own."

With their plants rebuilt and modernized, Europe's industry is spending ever growing amounts of money on research and development. This research, he reported, has reached significant proportions which make it imperative for American companies to keep abreast of this progress. "Much duplication and waste could be avoided if commercial 'intelligence' were improved."

Trade Fairs, a traditionally important thermometer of Europe's economic climate, are crowded with new exhibitors and new visitors. The Industry Fair in Vienna, with its Russian and East European exhibits, was especially interesting, he said, because it gave some indication of what American competition is in selling in the world markets. "For trade, the Iron Curtain is being lowered," Mr. Weil continued, "not only will new local industry compete with American products, but Russian mass-produced goods are being offered at prices we can't match with an ocean to cross and a profit to consider." He also reported on the Hanover and Frankfurt Fairs, which abounded this year in exhibits by small and medium sized companies showing their new products and techniques; many of them eager to enter the American market.

In his contacts with industry leaders abroad, Mr. Weil noted that their personal outlook had changed considerably, that in their relations with American business leaders they are more likely to act like brothers than the "poor cousins" they have so often been regarded. A criticism heard frequently, however, from owners of small companies, was that valid proposals for collaborating with smaller American firms — which are often perfectly feasible and do not involve any great investment — are frequently rejected outright. The reason for this, it is felt, is that either the smaller American firms have developed an "inferiority complex" so far as foreign business is concerned, or that the modest size of the initial financial return obscures for the American company an appreciation of the possible long-term gains.

Europe's economy, Mr. Weil pointed out, with its expanding market and

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NEW AEROSOL TECHNICAL AIDS . . .
NEW AEROSOL "Controlled-Quality" METHODS

AIR CONDITIONED dust cleansed, humidity controlled production facilities assure product consistency and stability—*another Gard aerosol first!*

HIGH SPEED DRUG AND COSMETIC production lines, isolated and air cleansed, are designed and operated exclusively to meet the specialized needs for all types of pharmaceuticals and cosmetics.

SPECIAL PRODUCTION LINES, also air conditioned and humidity controlled and designed for quality filling of paints, insecticides and all other household products.

ANALYSIS AND FORMULATION SERVICE is provided by modern 1200 square foot Gard laboratory.

EXPANDED SHIPPING AND WAREHOUSE FACILITIES, all-weather truck and rail docks assure "on-schedule" deliveries of your merchandise where you want it, when you want it.

PRIVATE OFFICE AND LABORATORY FACILITIES are provided for your personal use on any visit to the plant.

Gard—through its new home at 1739 Harding Road in Northfield, Illinois—puts at your disposal years of experience as one of the country's oldest, most progressive companies in the aerosol field. Now—supplementing this know-how are the most modern, most flexible and most complete facilities ever devoted to the research, manufacturing and marketing of aerosol packaged sprays, foams and powders.

You are invited to investigate the possible application of these outstanding facilities to your production requirements. If your needs involve testing, analysis, formulation or marketing assistance we can also be of help. Call or write for further information.

GARD INDUSTRIES, INC.
The Greatest Name in Aerosols
Hillcrest 6-7400
1739 HARDING ROAD NORTHFIELD, ILLINOIS

GARD

optimistic outlook, offers the greatest possible opportunity to industry here in the United States. "The extent of these opportunities is not always readily apparent to the casual observer, but with reliable information and competent counsel they can be profitably exploited by a growing number of American firms."

•

Nat'l Spray Can Moves

National Spray Can Filling Corp., Brooklyn, last month announced the removal of its offices and factory to 6202 Avenue U, Brooklyn 34. Phone number of the new office is Cloverdale 1-3350.

New Propellant Data

(*From Page* 62)

liver analysis was performed on each of the test animals, and based on the studies, Homemaker's reports there was "no evidence of liver damage."

To further pin down the effects of the propellant on the respiratory systems of the laboratory animals, both a closed and a free flowing system gas aquarium were used, with decreasing amounts of propellant from as high as 20%. After these tests were completed, further tests were conducted with humans — again in amounts from 4% of "Halothane" (Homemaker's name for the propellant) up to 20%. Here too, no adverse effects were observed; and, as a result of these carefully documented tests, no objection to the use of "Nebu-Halent" was registered by the U. S. Food & Drug Administration.

What about future uses of the "Nebu-Halent"? Its uses would seem to be far from restricted to asthmatic therapy. *Pulmonary emphysema* (over-distended lungs, due to infection of the bronchi or asthma, causing poor gas exchange and severe shortness of breath) and *Bronchiectasis* (dilation of the bronchi due to an inflammatory or degenerative process) are two additional respiratory diseases that give evidence of being readily treatable with the new aerosol device.

A separate function of respiratory therapy, that of introduction of antibiotics and other drugs into the respiratory tract and hence into the blood stream, is seen as a distinct possibility by the researchers at Homemaker's Products. Through this method they see two distinct advantages over intravenous injection or oral introduction of the drugs: (1) less of the drug would be required, and (2) side effects and other reactions would be considerably reduced.

A possibility of using the "Nebu-Halent" for application of perfumes (as sort of a different-scent each day applicator) is also foreseen by the company's staffers. In this use it might also be practically converted to suntan lotions and other topical applications.★

Consultants' Corner

(*From Page* 67)

industry is in a perfect position to exert some (even if only a little) influence toward the solution of problems by statemanship, especially where that term implies all that is good and constructive in human and organizational relationships.

Since at present the number of people engaged in aerosols in any one country in Europe is relatively small, and since the general problems do not change from one nation to another, it would appear that the only truly effective organization *must be* an overall European organization made up of members from all countries working together for the common good, and with the end in view of moving their industry into the common market among the first. The notion of each individual nation having its own regulations concerning safety and consumer protection should be the one thing approached on an overall continental basis rather than on a national basis.

The Common Market, in its fullest sense, cannot exist if uniform regulations for all the signatory nations do

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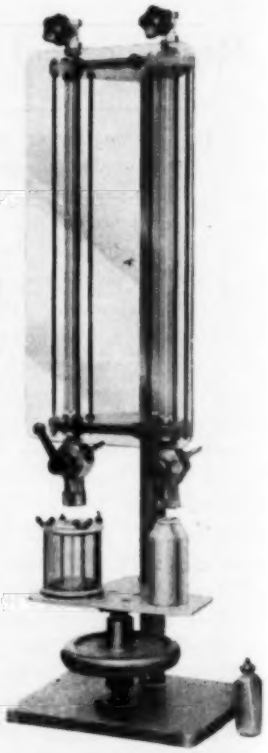

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not exist; and it is in this field of advice and counsel to the pertinent legislative groups that statemanship by the multi-nation association can be exerted. I am aware of all the potential difficulties of such an approach and the relative attractiveness of a refuge in nationalism when trying to get an association program under way; but the aerosol industry is a new one, and it is not being unrealistic to say that with high ideals and a determined effort the industry *can* set the example for many other industries to follow in achieving sound economic and regulatory integration in Europe. The European industry may very well be at the crossroads with a choice between acknowledged leadership and retreat into the patterns of the past.★

The Uncoated Glass Aerosol

(*Continued from Page* 44)

in detonation. Continental toiletry producers realize that a comparatively small number of aerosols packed in glass have already caused a sequence of accidents, which are self-explanatory."

It has been suggested to me from one quarter that some U.S. aerosol people think my tests were too severe. With this I cannot agree. They were completely realistic and as I have said before, when you are dealing with human safety you should, if anything, exaggerate the conditions rather than play them down. And do not forget that even if you are prepared to regard the possibility of serious injury as statistically insignificant, the one accident which does occur may set back the Aerosol Industry to a tremendous degree.

To complete my story I want to refer to an article called "Safety Factors in Packaging Glass Aerosols," which was published in *Aerosol Age*, August, 1956. This article was written by Maria V. Wiener herself, and, as I do not want to be accused of taking selected paragraphs out of context, I ask that all readers should study this particular article. She writes as follows:

> "The size of the bottle and the mass of the content have a great influence on the breakage factor in drop-tests, since these values are directly proportional to the impact force according to the formula: f = mgh. It was found that filled 2 oz. bottles and smaller often were capable of withstanding ten and more drops, but those of 4 oz. capacity and larger often broke at the first drop when tested under the same standard conditions."

I must point out that one can purchase, on the American market, uncoated glass aerosol bottles with a capacity of at least 4⅔ fluid ozs. Later, Mrs. Wiener says, "The majority of aerosol bottles today are plastic-coated for additional protection." She goes on to talk about the filling of plastic coated bottles and I emphasize that I know that she is talking about filling at pressures higher than those used in my experiment. However, her comments are very interesting because she says "When the bottle is broken, the effects which follow must be evaluated, namely, the tremendous force caused by the instantaneous expansion of the liquid propellant flashing into gas."

Now, I would like readers to pay special attention to the following in which I quote Mrs. Wiener:

> "When an uncoated bottle breaks, the contents become exposed to atmospheric pressure and the propellant being 'overheated' boils instantaneously. The change from liquid to vapor phase is accompanied by a very large increase of volume from about 50 to a few hundred times the liquid volume, depending upon the thermodynamic properties of the propellant and its initial temperature. For example, when liquid Genetron 320 or Freon 114 at 70°F. (27.5 PSIA) is suddenly opened to atmospheric pressure (14.7 PSIA) at the same temperature, it boils vigorously and each cc of boiled-off liquid changes momentarily to 189 cc's of vapor. The corresponding increase in volume on n-butane is about 230 times.
>
> "The sudden volume expansion creates a huge force which carries the glass with high velocity in all directions and relatively far away. Fortunately, not all the liquid propellant flashes instantaneously. The larger the surface of the content exposed to atmospheric conditions after breaking of the bottle, the greater is the amount of boiled off gas and the larger is the force developed. This explains why bottles which broke at the neck during the drop-tests exploded more vigorously, and why some plastic coatings with too large holes were less safe than those with smaller ones. Many hundreds of bottles observed at the drop-tests con-

(*Continued on Page* 116)

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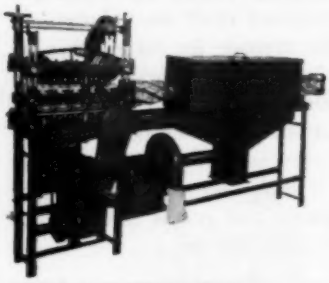

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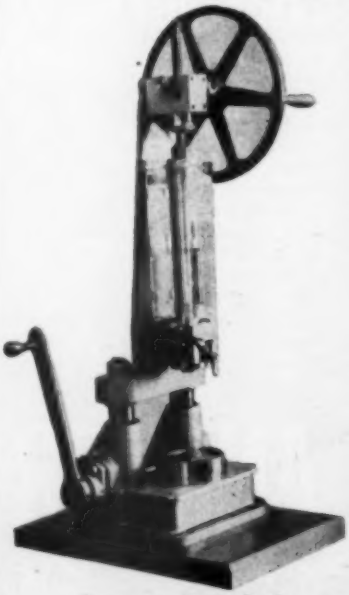

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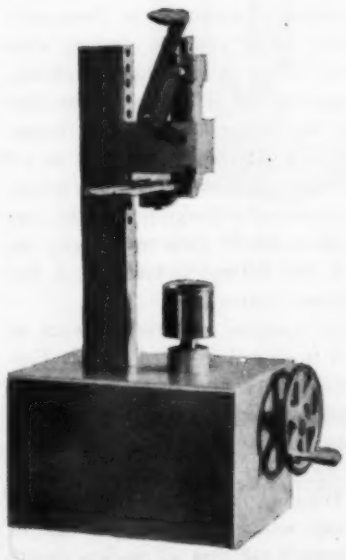

Foresman Hand Operated Vial Capper

Aerosols in Argentina

(*From Page* 43)

especially encouraging; but our aerosol group was determined to go ahead.

At this time, Lubin, a domestic perfume firm, began marketing "Gin Fizz" in an uncoated glass bottle, using an imported reusable Vapsol valve. The glass bottle and propellant (dichlorodifluoromethane) were locally produced and the filling was done by Lubin.

IN JUNE of this year prices of propellants were reduced about 20 per cent, and Kreglinger's Ducilo plant began production the following month. With this stimulus, several clients decided to package products in aerosols, and the future of the industry was assured. From the time of this first "breakthrough," several aerosol filling firms began operations, a number of them aiming products at the end of the year for national merchandising.

There has been a decided note of caution manifested by these fillers—a general feeling that we could not afford to allow our clients to market their aerosol products until every component was in good working order. It was felt that one or two product failures would seriously hinder the job of convincing the consumer of the aerosol's advantages.

In order to better give the reader an idea of the whole picture in Argentina, a list of the names of the aerosol firms and the prices for the different components might be of help. To establish the value in U.S. currency we have converted Argentine pesos to the dollar at the free market exchange rate of 40 to the dollar. Propellant prices are indicated per kilogram and other prices per 1000 units.

PROPELLANTS: Two firms are producing trichloromonofluoromethane and dichlorodifluoromethane in commercial quantities. "Algeon" is the trade name of the product of Fluoder SRL, and Ducila SA (distributors, Cia. Sud Americana Kreglinger Ltda.) is producing "Freon." Prices are, respectively, $1.20 and $1.80 for "Algeon" 11 and 12. "Freon" is slightly higher, about $1.2925 and $1.86. Probably before the end of the year dichlorotetrafluoroethane will be available in commercial quantities, and at present all types but 11 and 12 are authorized for importation by the Argentine Central Bank.

CONTAINERS: There is currently only one firm, Liubitch e Hijos SRL, producing seamless tin plate containers in two sizes (4½ and 6 ounces). Prices (U.S.) are $50 and $60 respectively for plain and without domes. Plastic or metal domes are sold at $6.25, and for internal lacquering $12.50 is added, and for external painting $17.50. One color decoration costs $7.50, two color $15—with both being done by Compania de Etiquetas Vitrificadas SA. Aluminum containers are still in the experimental stage, but we believe they will shortly be obtainable in one-piece or with opened bottom. Prices will be slightly higher than for tin plate containers.

VALVES: Two firms, Liubitch and Aerovalv, are manufacturing valves at prices of $70 and 62.50, respectively, for assembled valves with dip tubes. Other firms are also trying to get valves into production, and importation of foreign valves is allowed, but taxes bring them up to about 15c each.

FILLING MACHINES: So far as we know, all aerosol fillers are equipped with locally-produced machines. Druk-Pak is reported to have licensed a Buenos Aires firm to manufacture their machines, but at this moment they are not in production. Liubitch has designed and manufactured a valve clinching machine which sells at $150.

AEROSOL FILLERS: So far as the writer knows, the following are the aerosol fillers technically able to do contract filling. All of them, with the exception of Aerosol Argentina SRL, are exclusively pressure fillers, while that firm does both cold and pressure filling.

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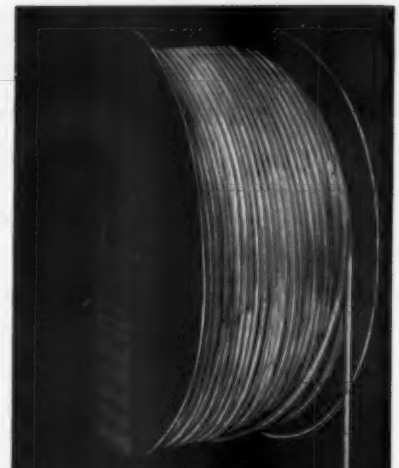

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At present there is a movement on to organize a contract fillers association, in order to better establish rules for aerosol filling. As has been hinted previously, there has been a real desire to keep the industry safe from the start, since we believe that safety and efficiency have been the two chief factors in the success of the U.S. aerosol industry.

MARKET POSSIBILITIES: The first aerosols to be marketed in Argentina will probably be insecticides and hair lacquers, followed by suntan preparations, room deodorants, etc. The cost price of the finished aerosol will be about $.50, and the selling price somewhere in the vicinity of $1. to $2.50 per unit. As usual, in Argentina the middleman will get the better part of the trade prices, with the contract fillers and product manufacturers working with small profit margins.

For the immediate future, (and with good consumer advertising) we believe that at least 500,000 aerosols will be marketed before the end of March 1958.★

Argentine Assn. Organized

An association concerning itself with the technical, commercial, and manufacturing problems in the aerosol industry has been formed in Argentina. At the first meeting of the group, held under the auspices of the Argentine Chamber of Commerce in August, it was decided to form a committee of experts to assemble all available information concerning aerosols and to study methods of overcoming the problems found.

At the first meeting Alberto Trilles, of Aerosol Argentina-Alberto Trilles, SRL, was elected president; Dr. Enrique R. Rusconi, Sintary C.I.C. Soc. Resp. Ltda., vice-president; Dr. Carlos Lambardi, Sud Kreglinger Ltda. Co., secretary; Santiago Van Straaten, Safca Aerosol, assistant secretary; Antonio Arrigoni, Fotoquimica Ltd., treasurer; and Dr. Jorge Balla, Dr. Gador Laboratories, assistant treasurer. To be directors, Dr. Enrique Illescas, Argentine Aerosol Products; Teodoro E. Crombер; Jose C. Gourdy, Etiquetas Vitrifica Co.; and Dr. Eduardo D. Mouzo, Lab. Dr. Mouzo & Co., were named.

A technical subcommittee was appointed to concentrate on the technical aspects of pressure packaging, and another subcommittee was named to concern itself with getting favorable publicity for aerosols. The association has announced that a General Aerosol Congress is being planned for next September.

To become associated with the Argentine aerosol group, the prospective member is required to be either a distributor, a manufacturer, or a manufacturer's representative within the aerosol industry. He must also be a member of the Argentine Chamber of Commerce, and be acceptable to the board of directors. The association plans to have monthly meetings.

Editorial

(*From Page* 29)

Related to this same subject, there has been considerable discussion about the official status of one publication in relation to that of another in the eyes of any association. It has always been our position that it is unwise to restrict the publication of technical papers to a single periodical on a wholly-exclusive basis. Doing this tends to restrict use of the material in the paper to the readership of one journal; and, in the case of a European association, with the ever-present language difficulty, this could be a tremendous drawback.

Aerosol technical papers should become public information as soon as they have been read officially. To print them later than the next month after they have been delivered is to do an injustice to the hard work the

authors have put into them; and, equally important, tends to withhold from the industry information it should have.

All these are pitfalls that any new European organization will have to avoid. They can be avoided by mere exercise of common sense, and in no way should hold up organization of the European aerosol industry on a sound and healthy basis. Whether this should best be accomplished through a single association or a set-up involving multiple trade groups is, we feel, a matter which those affected are in the best position to decide.★

Editor's Mailbag

(*From Page* 10)

readers should be informed that our offices at 2 Waisenhausstrasse, Zurich, will gladly give all information to interested parties.

Dr. E. J. Honisch
Vice-President and Secretary
INTERNATIONAL AEROSOL ASSOCIATION
Zurich, Switzerland

To The Editor:

I am very much interested in obtaining high pressure aerosol insect bombs from fillers and packagers.

Sidney Goldfarb
1638 64th Street
Brooklyn, New York

Aerosols in Review

(*From Page* 55)

in some instances is dependent on the amount of gibberellic acid applied: the more applied, the longer the effect."

The paper points to the wide variation in the response shown by different plant species. "In our tests, some of the foliage-type house plants were not affected by sprays of 1000 ppm., whereas bean plants were sensitive at less than 1 ppm. Furthermore, different varieties of beans responded differently to a given quantity of gibberellic acid."

The Lilly researchers also declare that application of gibberellic acid is likely to result in the inhibition of the roots. "It has been reported, for example, that gibberellic acid sprays on the aerial parts of potatoes, turnips, and carrots have resulted in a lower yield of these root crops. This inhibition does not appear to hold for all species. More work is necessary to understand the inhibition, and possibly to reverse it. For the present, though, root growth inhibition appears to offer a serious limitation, since plants with poorly developed root systems are more likely to lodge and to be more subject to drought stresses."

The researchers express optimism about the ability of gibberellic acid to accelerate flowering, the breaking of dormancy, fruiting, and plant elongation in a number of important species; but here too point out that the substance can have an exactly reverse effect on certain other species.

Promising results are reported with use of gibberellic acids in treating Thompson seedless grapes in California. A report, delivered to a meeting of the American Institute of Biological Sciences at Palo Alto, Calif., in August, says that treatment of grapes at 50 parts per million resulted in significant berry enlargement and elongation of cluster parts, thus decreasing rot and aiding sanitation. *(Agricultural Chemicals,* October, 1957 issue)★

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Frankfurt Meeting

(*From Page* 35)

air of quality. However, he opposed making it obligatory.

The subject of safety measures necessary for safe industry use of German propellants was introduced. Mr. Hans proposed that a uniform code of safety be accepted by all members, pointing out that the regulations should not be all-restrictive, but merely strong enough and so widely publicized that any violator

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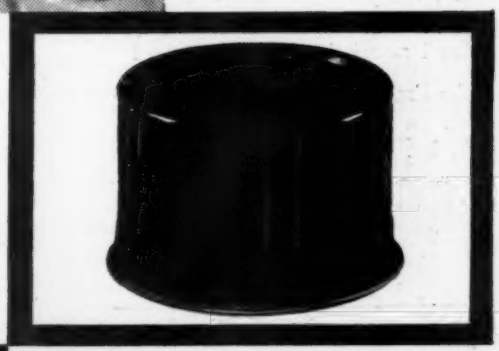

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would find his production figures suffering if he didn't heed the code. H. Prast of J. A. Schmalbach AG, contended that existing German gas regulations are adequate, and that there is no real need for any industry-wide regulations. He pointed out that the association, with its many non-German members, could hardly regulate German propellant gas safety laws.

THE International Aerosol Association, recently-formed group set up in Zurich, came in for considerable discussion after the brief breakfast adjournment. G. M. Mayer IAA, president, introduced himself and informed the group of the aims of his association.

He pointed out that a particular advantage of the IAA is its location in politically neutral Switzerland, which is also the geographical center of commercial Europe. He suggested that national associations of aerosol manufacturers be formed which then could become "adjuncts" to the IAA. He pointed out that this would enable non-European countries to be regional members within one major international association.

Mr. Mayer mentioned several times that the IAA has no ambitions toward becoming dictatorial, but rather seeks to become an information center, a coordinating influence, and only that. He suggested that, in the future, the principal officers of the IAA could be drawn from the various regional associations.

The Frankfurt group made no decision on future relations with the IAA, but instead decided that any such relationship should be left for a future discussion.

The matter of regional or national associations, stemming from a proposal by Director Staehle, Mouson, and Dr. Pfleghar of Staehle K.G., that a German association be formed first, with provisions for later allowing firms in other countries to join, followed the IAA question. This proposal drew fire from Dr. P. H. Witjens, of Polak & Schwarz (Holland); Dr. J. S. Jellinek, of Polak's Frutal Works; and L. Workum, of Aerosol Co. Holland, who pointed out that aerosol problems are European and even universal in their nature, and that it would be entirely superfluous to form national associations. They declared that these aerosol problems could be best solved by immediate cooperation on an international level.

As an alternative to formation of strictly national groups, Dr. Meursch, of Boehringer & Sohn, Ingelheim, suggeted that Germany, Italy, and England form a nucleus for an aerosol association; and that other countries be allowed to "crystallize" their votes in conjunction with one of these three countries. The chairman, Mr. Hentzel, maintained that the association should be European, both in its composition and organization, and that no regional divisions on the basis of nationality be made.

To decide this and other matters discussed previously the delegates then selected a subcommittee from the various component suppliers and fillers in the industry. The following were named to the subcommittee:

1. Propellant — Mr. Hof of Farbwerke Hoechst AG, Frankfurt.
2. Glass Bottles — Mr. Seibel of Glaswerke Ruhr, Essen (Germany).
3. Loading Equipment — Dr. E. J. Honisch, of Aeratom, Rapperswil (Switzerland).
4. Cosmetics — Mr. Staehle, of J. G. Mouson, Frankfurt (Germany).
5. Contract Fillers — Emil Hirschburger, of Aerosol Service, Riehen (Switzerland).
6. Perfumes — Mr. Bergwein of Dragoco-Gerberding & Co., Holzminden (Germany).

For the other posts on the subcommittee tentative nominations were suggested. For the tin can suppliers, Mr. Buchholz, of Braunschweigische Blechwarenfabrik GmbH. Braunschweig (Germany) agreed to consult with the other members of his industry group and later suggest a delegate. For valves, W. G. Delmore of Precision Valve International, Zurich (Switzerland) requested additional time to consider his nomination to the post. For aluminum cans, Director Kohl was nominated in absentia and asked to accept or reject the nomination. To represent the insecticide producers, Mr. Reulecke, of Cela-Landwirtschftliche Chemikaliegesellschaft mbH., Ingelheim (Germany) requested additional time to consider a representative for his industry group.

At the end of the day's session there seemed to be a feeling of optimism about the future of the association. The opinion seemed widespread that the discussions had been positive and useful, and that from the meeting concrete results can be expected.★

Who's Who in Aerosols

(*From Page* 101)

centrated his work in the laboratory. Mr. Smith was principally involved in the development of pressure filling machines.

In collaboration with H. R. Shepherd, founder and president of Aerosol Techniques, Inc., Mr. Smith was one of the first to perfect practical application of pressure packaging to shaving cream and other aerated products.

Surface aerosols have also been a major area for Mr. Smith's research, and he has been responsible for the improvement of formulation for the adherence of such sprays.

At ATI, when he finds the time away from his current production concerns, Mr. Smith has been devoting himself to research on food aerosols, in which he believes the industry's most significant advances will be registered in the immediate future.

Mr. Smith is a member of the American Institute of Chemists, American Chemical Society, Society of Cosmetic Chemists, and American Institute of Chemical Engineers.

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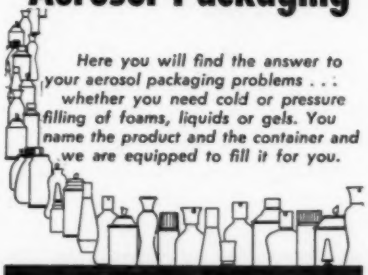

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A Correction

In the November issue of *Aerosol Age* there appeared a story reporting that Pennsalt Chemicals Corp. had named American Potash & Chemical Corp., Los Angeles as national distributor for its "Isotron" line of aerosol propellants and refrigerants. Actually, American Potash will handle *only* the "Isotron" refrigerants, and Pennsalt will continue to market its aerosol propellant line through its own district and regional agents and representatives.

Kolmar to Australia

Kolmar Laboratories, Milwaukee cosmetics manufacturer, has announced construction of a new plant near Sydney, Australia, for the production of cosmetics. The plant, which will be run by Kolmar's subsidiary, Kolmar of Australia, will be under the supervision of Leslie L. Hall, managing director.

Droplet Measurement

(*From Page* 42)

Conclusion

A variety of particle size determination techniques are available today for the evaluation of dispersions of solid or liquid particles in air and, while certain of these techniques have limitations and are often complex, adequate information should be available for the needs of the aerosol packaging industry. Reliable techniques are also available for the determination of particle size in pre-ground or pre-atomized materials for ejection as powders.[32] A knowledge of the size requirements and experience in the interpretation of the evaluation techniques is helpful in properly applying the information obtained. The influence of particle size on settling of fogs, evaporation of droplets, and possible implications regarding inhalation therapy have been discussed. The application of scientific methods to the sizing of particles produced should lead to the extension of the pressure-packaging technique to new types of products.

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Nitrogen Aerosols

(*From Page* 42)

color. These have very powerful water-in-oil emulsifying properties and a good stabilizing effect for oil-in-water emulsions. A characteristic of these alcohols is their high cholesterol content (minimum 28-30%).

Liquid lanolin esters or lanolin oils have been improved over the years and are now available in pure deodorized forms. While they do not have the same good emulsifying properties of lanolin alcohols, they are good emollients and hair conditioning agents.

For food products and tooth pastes, the formulator has at his disposal a versatile range of edible thickeners, stabilizers, emulsifiers, and gelling agents in the alginates. Solutions of alginates are very stable at a pH between 4 and 10. Pure alginates are white powders, completely soluble in water, that form viscous solutions. Their chemical and physical properties are standardized, but it is important to choose a grade free from calcium. If care is not used in the selection of the alginate, the calcium will increase the viscosity of the aqueous solution and give a false impression of the degree of polymerization of the alginic acid.★

Aerosols Overseas

(*From Page* 59)

from aerosol associations organized on national levels — a sort of holding company in the field of aerosol associations.

The opinion seemed to predominate that one shouldn't try to put a roof on a house before the foundations are laid, and some of the smaller nations (Holland, Denmark, etc.) said their national aerosol industries are too small to support separate local associations. With the European Common Market a possibility in the near future and with common European interests, it was decided almost unanimously by the Frankfort group that a European aerosol association is needed to represent the European industry and its component material suppliers. The representatives seemed not interested in an "International" association, no matter how well intentioned. In the end, two organizers of the Swiss association accepted appointments in a working group formed to set up the outlines for this new European Aerosol Association.

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This working group consists of a representative from each of the following industry branches: containers (one each from tin, aluminum and glass), propellants, valves, filling equipment, cosmetics, perfumes, contract loaders, insecticides and pharmaceuticals—eleven in all. This group will report to the European industry in the near future with recommendations covering the establishment of a European Aerosol Association, its possible organization, rules, membership, etc. Undoubtedly, another industry meeting will be held in middle or late winter to iron out the details and consider the report of the working group. If all goes well, this should mean an effective European Aerosol Association by spring of 1958. In the meantime, Mr. Hentzel will clear matters for the industry group.

THE whole tenor of the Frankfurt meeting was one of optimism for Europe's future in aerosols. The new package *has* caught on! Gone are the arguments the public will not buy a can which has to be thrown away when empty, that the prices are too high (they are steadily coming down), that what goes well in the US may not go at all in Europe, that the product line is too limited for the loading equipment investment, etc., etc. Admittedly, the European pattern is different. Pressure filling continues to predominate over cold filling and, except for market-starting, the contract loader plays a relatively minor role. Also, the foams continue to lag. But new models of fully automatic pressure filling machines, said to be capable of 10,000 to 12,000 units per day, will shortly make their appearance. The one-or two-spout cold line seems to be a thing of the past in Europe. All component parts suppliers are planning expansion to meet a growing market demand.

A good example of what is happening has occurred in Denmark, with a total population of about 4.5 million. Three years ago, there were two fillers, today there are five, with several others interested. Nivea, the international cosmetic house, started a little over a year ago with an experimental shaving lather and have since

increased their production practically every month. Today, the Nivea line includes five different products of excellent quality and the firm also does contract loading for several other international brand names in the cosmetic field. The company's current demand has outrun the original facilities, which have had to be expanded. Until last year, all aerosol cans were imported, but Denmark now has its own local manufacture of containers. From an annual production three years ago of something around 150,000 units, the Danish industry should go over one half million this year. The record is even more impressive when one considers the economic climate of this small nation, the import restrictions, difficulties in obtaining foreign currencies, and the relatively low living standards of its workers. The story repeats itself in other countries, but Denmark is a good example.★

Western Filling

(*From Page* 34)

in combination with established lines on the West Coast are expected to enable the company to offer its facilities on a national as well as a local scale.

Work is also proceeding at Western Filling on items not directly associated, but still related, to the food field (such as pressurized tooth pastes and pharmaceutical items). The current food filling line of Western Filling will have facilities for the packaging of these products as well.

The research efforts of Western Filling and the major can companies are already bearing fruit in the form of new products. Within the next few months the following products should be rolling off Western Filling's lines to take their place with the Andersen "Sizl-Spray":

1. chocolate syrup
2. barbecue sauce
3. salad dressing
4. fruit syrups
5. And others

It is believed that each product in turn will be another "first" in the pressurized food field.★

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The Uncoated Glass Aerosol

(*From Page* 105)

firmed the above assumptions.

"It is thus apparent that for increased safety with glass aerosols, the amount of propellant should be kept as low as possible. A too low percentage of propellant may of course cause difficulties in obtaining a proper spray pattern. However, there are indications that some additives in the formulations may improve the spray characteristics. Another possibility of overcoming this problem is to develop a valve which will improve the atomization of the aerosol product by some mechanical means.

"Shattering of bottles containing carbonated beverages does not produce the same problems encountered with glass packaged aerosols made from liquefied propellants, for the effect of flashing is not present. The only similarity between glass aerosols and bottled carbonated beverages lies in the stress of the glass produced by pressure which influences the breakage factor. However, after the bottles are broken, it is quite obvious that the shattering of the glass from the true aerosol would be much greater than with carbonated beverages tested under the same conditions.

"It has been observed that the strength of the glass is greatly influenced by the medium in contact with the glass surface. Water and alcohol considerably reduce the strength of glass (up to 20%) while dry paraffin oils and some plastics increase its strength (about the same amount). This effect is probably caused by surface tension and invisible surface flaws."

A comparison of the expansion volumes in Mrs. Wiener's two articles will reveal a difference in her use of the words "explosion" and "shattering." The important factor to be noted is, however, that Mrs. Wiener has completely changed her ideas on the relative safety of beverage and aerosol bottles in the short space of less than a year.

When we published our article last February, we had not anticipated that it would cause such a stir in the Industry. We were mainly concerned with putting in true perspective the explosive possibility inherent in an aerosol bottle and a beverage bottle. We had no intention of making a case for the absolute safety of beverage bottles. We have diligently searched for beverage bottles which were more explosive than those on which we based our original work, and we also searched for uncoated glass aerosols which were obtainable on the market. We are now in the process of taking photographs of both these sets of bottles and hope to publish our results in a very short time. We can say in advance that we have found beverages which, while lacking in the danger of an aerosol bottle filled to our formula 'a,' are *more* explosive than those beverage bottles shown in our photographs. On the other hand, we have also found uncoated glass aerosols that are considerably more dangerous than the bottles containing our Filling 'b.'★

•

Mrs. Wiener's Answer

(*From Page* 45)

the full story; and might conceivably be misinterpreted. The use of statistical approach has been found very helpful in arriving at the true frequency of occurrence and its intensity. Exhaustive data obtained in this way make it possible for executives of a company to evaluate what type package they would consider to be commercially safe.★

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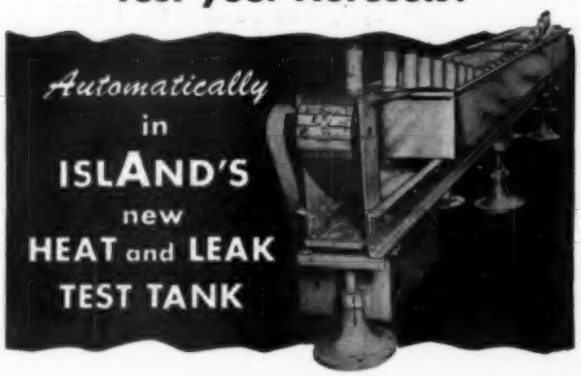

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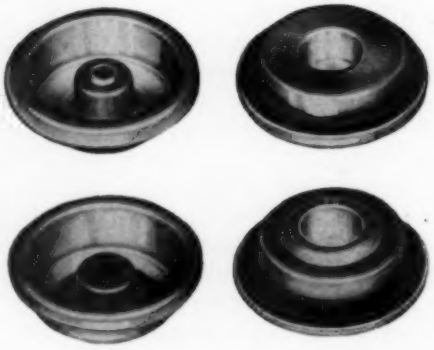

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New Aerosol Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication.

Complete copies of these patents may be obtained by writing to the publisher of this magazine, Aerosol Publications, Box 31, Caldwell, N. J., and remitting 50c for each copy desired. For orders received outside of the United States the cost will be $1.00 per copy.

2,808,856. VACUUM FILLING MACHINE. Patent issued Oct. 8 to Dominic W. Tiano, Weymouth, and Arthur F. Whitehead, Quincy, Mass., assignors to Pneumatic Scale Corp. Ltd., Quincy, Mass., a corporation of Massachusetts.

In a machine of the character described, in combination, two laterally spaced nozzles for cooperation with separate containers, container supporting means for supporting two containers, each in operative position and sealing engagement with relation to one of said nozzles, one of said nozzles constituting a purging nozzle and being operatively connected to a source of suction and to a source of inert gas, control means for controlling the application of suction through said purging nozzle to a container cooperating therewith and for controlling the flow of inert gas into the container through said purging nozzle, means for operating said control means to first evacuate the air from the container disposed in operative position with respect to said purging nozzle and for thereafter introducing inert gas through said nozzle into the container thus evacuated while maintained in said sealing engagement, means for removing the thus purged container from said sealing engagement into operative sealing engagement with the second nozzle, means for thereafter filling the container with a liquid through said second nozzle and means enclosing said nozzles and containers in an atmosphere of inert gas at a pressure slightly above atmospheric pressure during said purging and filling operations.

2,811,390. AEROSOL VALVE ASSEMBLY. Patent issued Oct. 29 to Joseph L. Kiraly, La Grange Park, Ill.

In combination with a container having an opening in one wall thereof, a mounting cup secured in said opening, a tube holder secured in said mounting cup, a stem secured to said tube holder by a frangible web integral with said tube holder and stem, a flexible dip tube secured at one end to said tube holder, a weight secured to the opposite end of said dip tube, said weight having a bore in communication with the interior of said dip tube, and a spray tip secured to said mounting cup, said spray tip having a bore surrounding said stem, said tube holder having a bore communicating with the interior of said container and sealed from the bore of said spray tip by said frangible web, said spray tip being displaceable laterally to break said frangible web to permit pressurized contents of said container to flow through said tube holder into the bore of said spray tip for discharge into the atmosphere.

2,811,289. AEROSOL BOMB VALVE AND GUARD. Patent issued Oct. 29 to William E. Davis and Blanton J. Whitmire, Kirkwood, Mos., assignors to Whitmire Research Laboratories, Inc., St. Louis, a corporation of Missouri.

A valve guard on a pressure type container having a valve with a skirt providing a pan-shaped closure for the container, said closure having a bottom and a side wall with an exposed inner surface above said bottom, said valve having a vertically depressible hollow stem projecting above said bottom and a knob mounted on the upper end of said stem and carrying a nozzle, said guard comprising legs slideably engaging the inner surface of the side wall of the closure for axial movement with respect to the container, said legs being substantially as long as the distance from the top of said knob to the bottom of said closure when the stem is fully depressed and said legs being spaced apart to define an open space between them; a platform carried by said legs, said platform having a central section, and a clamp depending from said central section and embracing said knob, said clamp having an opening into which the nozzle of the knob extends, said clamp opening being aligned with the space between the legs, said platform extending above and beyond said knob and said nozzle.

2,811,282. MACHINE FOR FILLING LIQUIDS INTO CONTAINERS. Patent issued Oct. 29 to William Pechy, Belmar, N.J., assignor to American Can Co., New York, a corporation of New Jersey.

In a machine for filling liquids into containers, the combination of a liquid supply tank, a measuring chamber housing communicating with said tank for measuring out from said tank a charge of liquid to be filled into a container, a cut off member slidably disposed in said housing, a resilient compressible nozzle member surrounding said cut off member in immediate contact therewith, means for compressing said nozzle member to shift said cut off member in said housing to cut off communication between said housing and said tank so as to segregate said measured charge of liquid in said housing, a normally closed valve

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element at the delivery end of said nozzle member, means for opening said valve element to deliver said segregated charge of liquid into a container, and drain means disposed between said cut off member and said nozzle member in the region of their immediate contact for draining off excess liquid trapped between said members through shifting of said cut off member.

2,808,972. PLASTIC NOZZLE MOUNTING AND METHOD OF FORMING SAME. Patent issued Oct. 8 to Sylvester L. Flugge, Glen Ellyn, and John Henchert, River Forest, Ill., assignors to Continental Can Co., Inc., New York, a corporation of New York.

In a container structure, a plastic nozzle having a tubular body and a mounting base extending outwardly from the lower end of the body and having an annular anchoring and sealing rib upstanding from its periphery and spaced outwardly from and surrounding said body, a metal container wall having a nozzle body receiving opening therein surrounded by a downwardly opening annular channel embracing the nozzle base rib and defined by a channel base merging inwardly into an inwardly and downwardly curled annular edge and outwardly into a downwardly extending upright annular wall, and an annular bead in said wall indented into the nozzle base and securing the nozzle base rib under compression in liquid sealing assembly in said channel.

2,811,087. CARTON SETTING UP AND ASSEMBLING MACHINE. Patent issued Oct. 29 to Biagio J. Nigrelli, Skokie, Ill. assignor to Container Corp. of America, Chicago, Ill., a corporation of Delaware.

In a machine for opening flat carton shell blanks of the type having major and minor side walls, means for feeding the blanks one at a time successively to a stationary position at an opening station, squaring up mechanism at the opening station comprising opposed vacuum devices movable toward and away from each other for simultaneously engaging the major sides of the blanks at the opening station and pulling the same apart to produce the squared up carton shells, such vacuum devices being movable from positions of close proximity wherein they engage the opposite sides of a blank disposed there-between to separated intermediate positions wherein the major sides of the blank are pulled apart a distance sufficient to square up the blank, such devices being movable from their intermediate positions to positions wherein they are further separated so as to clear the major sides of the shell, and means for moving said vacuum devices between such various positions, such last mentioned means comprising a first motor having a casing and a relatively movable member operatively connected to the vacuum devices and operable upon actuation of the motor to impart an initial movement to the member, a second motor likewise having a casing and a relatively movable member, said latter member being operatively connected to the casing of the first motor, the second motor being operable upon actuation thereof to shift bodily the position of the first motor to impart a final movement to the member of the first motor, and means for successively actuating said motors.

Trade Mark Applications

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U. S. Patent Office. In not all cases are there strictly aerosol trademarks, however many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

BLUE CAPRI, for toilet water, dusting powder, after-shaving lotions, men's cologne, body deodorants and anti-perspirants, and shaving creams. Filed Sept. 12, 1956 by Sutton Cosmetics, Inc., New York, N. Y., with first use April 1, 1954.

PENNSALT CHEMICALS, in bold face capitals in a box, for insecticides, fungicides, herbicides, halogens, refrigerants, propellants, alcohols, and a number of other chemical substances. Filed Jan. 9 by The Pennsylvania Salt Manufacturing Co., Philadelphia, which claims first use Nov. 28, 1952.

EBONY, in heavy script, for lipsticks, eyebrow pencils, rouge, after-shaving lotions, colognes, deodorants, anti-perspirants, shaving creams, and skin creams. Filed Dec. 11, 1956 by Sutton Cosmetics, Inc., New York, claiming first use Dec. 3, 1956.

BRIDGEPORT, in script superimposed on a diamond outline, for weed killer. Filed Jan. 13, 1956 by Bridgeport Brass Co., Bridgeport, Conn., claiming first use Feb. 15, 1955.

LADY CHESELINE and LORD CHESELINE, for hair tonic, and preparations for hair dressing and hair conditioning. Filed Jan. 25 by Chesebrough-Pond's, Inc., New York, claiming first use Oct. 24, 1956.

E-Z OFF, for defoliants. Filed April 5, 1956 by Allied Chemical & Dye Corp., New York, claiming first use Sept. 16, 1956.

SILI-SPRAY, for waterproofing and water-repellent composition used in the treating of fabrics. Filed Oct. 11, 1956 by R. E. Ellis, d.b.a. California Flameproofing and Processing Co., Pasadena, Calif., with first use claimed for Aug. 20 of same year.

PHOSTEX, for insecticides, herbicides, and fungicides. Filed April 17 by Food Machinery and Chemical Corp., New York, with first use claimed July 31, 1956.

REX, for room deodorant. Filed April 24 by Rex Research Corp., Toledo, Ohio, claiming first use June 15, 1948.

W. Alec Jordan
Chemical Business Counsel

- Marketing Analyses
- Product Development
- Evaluation of Purchasing Determinants

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BRIDGEPORT, in script superimposed on a diamond-shaped outline, for water repellent for clothing and fabrics. Filed Jan. 13, 1956 by Bridgeport Brass Co., Bridgeport, claiming first use March 24, 1955.

TIZ-MAGIC, for hair setting preparations. Filed Feb. 25 by M. Pier Co., Inc., d.b.a. M. Pier Co., Crystal Lake, Ill., with first use claimed Dec. 19, 1956.

B-DRY, for anti-perspirant and deodorant product. Filed April 11 by Helena Rubinstein, Inc., New York, claiming first use Nov. 12, 1956.

TRA LA, for perfume, cologne, dusting powder, and hair spray. Filed March 26 by Colonial Dames Co., Ltd., Los Angeles, claiming first use July 17, 1950.

LIKE MAGIC, for room air freshener. Filed May 8 by Better Brushes, Inc., Palmer, Mass., with first use claimed on same date.

GASFAZE, for propellant gas sold in dispensers of the aerosol type. Filed April 19, 1956 by Homemaker's Products Corp., Englewood Cliffs, N. J., claiming first use April 11 of same year.

MIST OF CEDAR, in unfilled script, for insect repellent. Filed Nov. 19, 1956, by Spritz, Inc., Royal Oak, Mich., with first use claimed for June 7, 1956.

KO, in large unfilled capitals, for deodorants. Filed June 22, 1956 by The Pioneer Manufacturing Co., Cleveland, claiming first use Oct. 1, 1930.

LIQUI SATIN, in bold-face capitals, for hair rinses and dyes. Filed Feb. 27, 1956 by Noreen, Inc., d.b.a. Besauty Products, Ltd. and Noreen Distributors, Denver, with first use Feb. 1, 1956.

STYLE-TEX, in script-style capitals, for hair setting lotion. Filed March 20 by The Wella Corp., Englewood, N. J., claiming first use Jan. 22 of this year.

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Roux Names PR Agent

Roux Laboratories, Inc., New York, manufacturer of hair colorings, has announced the appointment of Barkann & Platt as public relations and publicity counsel. The agency is a specialist in promoting beauty and hair care products.

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